Dissertation Title

# "Implementation of Fixed Asset Management system to manage Assets and calculate Net Worth of the Hospital in Sir Ganga Ram Hospital, New Delhi"

**A Dissertation proposal for**

**Post Graduate Diploma in Health and Hospital Management**

By

Anjali Kashyap

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**International Institute of Health Management Research**
**New Delhi**

**Date**
25 February-31 March 2012

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**A dissertation submitted in partial fulfillment of the requirements**

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## Certificate of Internship Completion

Date: 31st March 2012

# TO WHOM IT MAY CONCERN

This is to certify that Ms. Anjali Kashyap has successfully completed his 3 months internship in our organization from December 19, 2011 to March 19, 2012. During this intern he has worked on Implementation of FAMS under the guidance of me and my team at Sir Ganga Ram Hospital (any positive/negative comment) We wish him/her good luck for his/her future assignments

(Signature)

_____(Name)

_____Designation

# Certificate of Approval

The following dissertation **titled "Implementation of Fixed Asset Management system to manage Assets and calculate Net Worth of the Hospital in Sir Ganga Ram Hospital, New Delhi"** is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post-Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name Signature

_____ _____

_____ _____

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## Certificate from Dissertation Advisory Committee

This is to certify that **Mr./Ms. XYZ** , a graduate student of the **Post- Graduate Diploma in Health and Hospital Management**, has worked under our guidance and supervision. He/She is submitting this dissertation titled "**ABC ...**" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

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**Anjali Kashyap**

# "Implementation of Fixed Asset Management System to Manage Assets and calculate the Net Worth of the Hospital"

**Abstract:**

In Sir Ganga Ram Hospital Fixed Asset Management was found to be one of the problem which was affecting various important management decisions such as purchase of asset, asset disposal, net worth of the department or hospital etc. on the other hand it was difficult to track the assets in the hospital, maintenance and financial report generation for budget management and tax calculations. So the hospital management decided to implement Fixed Asset Management System in the hospital. Due to inappropriate policies hospital had to face a lot of limitations at every phase of implementation such as incomplete data collection, wrong data collection, including assets which are not fixed assets, damaging of temporary tags, incomplete financial data, incomplete AMC/CMC details, movement of assets from the native site to other site before go live of the system. It was found that out of 3684 assets, 2% had to be excluded, only 18% were with full details out of the assets which should have full details in the data collection sheets. 14% Assets were without full details and the major contribution was from local vendor's assets.

To consider all possible reasons and causes which may lead to failure of FAMS a "Failure Mode Effect Analysis" was done where three most severe failure modes were found as: "Wrong service contract details" then incomplete financial data of assets because they directly affect the financial calculations which lead to net worth discrepancy of the hospital and then "Wrong insurance calculations because it also affects the financial reports and management decisions. The least severe failure modes have less financial impact on the net worth of the hospital.

Various recommendations for all these anticipated and real problems were also discussed such as audit of data collected before GO LIVE , use of RFID to prevent theft, Valuation of Assets by experts in case it is difficult to get the financial data as in case of group wooden items. It was also found that the chances of success of FAMS are higher in Green Field Hospital instead of Brown Field Hospital due to various limitations at every phase of the

implementation. Audit on every step should be done whether that is of data collected or asset movement for getting efficient Fixed Asset management.

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# List of Abbreviation

| Abbreviation | Description |
|---|---|
| FAMS | Fixed Asset Management System |
| GRN | Good Receive Note |
| OPD | Out Patient Department |
| OT | Operation Theater |
| PO | Purchase order |
| SGRH | Sir Ganga Ram Hospital |
| SOP | Standard operating Procedure |
| SSI | Small Scale Industry |
| RFID | Radio Frequency Identification |
| ROI | Return on Investment |
| VAT | Value Added Tax |
| AMC | Annual Maintenance Contract |
| CMC | Casual Maintenance Contract |
| | |

# Part-I

## 1.0 Organization profile:

**Sir Ganga Ram Hospital** is a 650-bed multi-specialty state-of-the-art **Hospital in India**. It provides comprehensive **Healthcare India** services, and has acquired the status of a premier medical institution. It is the only hospital in the private sector that has maintained nearly 100% bed occupancy due to its reputation of providing the highest level of medical services to patients from Delhi and neighbouring states. The hospital was founded initially in 1921 at Lahore by Sir Ganga Ram (1851-1927), a civil engineer and leading philanthropist of his times. The foundation was laid in April 1951 by the then Prime Minister of India Shri Jawahar Lal Nehru and inaugurated by him on 13 April 1954.

Sir Ganga Ram Hospital in India continues to maintain its charitable character in accordance with to the wishes of its founder. Funds generated from the hospital services are partially utilized for providing free health care to the poor and needy patients. All development activities of the hospital are financed from internal resources, with no financial assistance provided by the government or other external agencies.The hospital is governed by a Board of Management comprising medical consultants of eminence, some with an international standing. The Board of Management operates under the overall guidance of the Sir Ganga Ram Trust Society of which Shri Tej Ram, is the current chairman.The Sir Ganga Ram Hospital is committed to make available 20% beds of total strength for admission of indigenous and financially weaker section of the society. On these beds all facilities (boarding, lodging, investigations, medicine and operative procedures are free. In addition to that we are running regular OPDs for all disciplines where patients are seen free of charge. 40% of all the investigations is the OPD patients are free of charge. These facilities are provided strictly on a first-come first served basis.

## 1.1 Departments:

Sir Ganga Ram Hospital has the following specialties

- **Anaesthesia**
- **Biochemistry** (Chemical tests for diseases)
- **Dharma Vira Heart Centre**
    - **Cardiology** (Heart)
        - Hyperlipidaemia Prevention clinic
    - **Cardiac Surgery** (Heart Surgery)
- **Center of Medical Genetics** (Tests for hereditary diseases)
- **Chest Medicine** (Lungs & chest diseases)
- **Clinical Haematology** (Blood related problems)
- **Clinical Microbiology** (Tests for infections)
- **Critical Care & Emergency Medicine** (Care of the seriously ill)
- **CT Scan & MRI** (Imaging)
- **Dental Surgery** (Teeth)
- **Dermatology** (Skin)
- **ENT & Speech Therapy** (Ear, Nose, Throat)
- **Endocrinology** (Diabetes, Thyroid, Hormone problems)
- **Fetal Medicine**
- **Gastroenterology** (Liver, Stomach, Intestine problems)
- **General Surgery**
    - Breast Clinic
    - Colorectal Clinic
- **GRIPMER**
- **Haematology & Clinical Pathology** (Tests for blood diseases and examination of urine, stool & body fluids)
- **Holistic Medicine**
    - Tobacco cessation clinic
    - Yoga lifestyle clinic

    - **Acupuncture**
    - **Ayurveda**
    - **Homoeopathy**
- **Hospital Administration**
    - **Administration**
    - **Operation Theatres**
- **Institute of Child Health**
    - **Neonatology** (Newborns)
    - **Paediatrics** (Children)
        - Development clinic
        - Genetic clinic
        - Pulmonology clinic
        - Endocrinology clinic
        - Thalassaemia clinic
        - High Risk Neonates clinic
        - Haematology Oncology clinic
        - Neurology clinic
        - Nephrology clinic
        - Gastroenterology clinic
    - **Paediatric Surgery** (Surgery on children)
- **Institute of Minimal Access, Metabolic & Bariatric Surgery** (Keyhole surgery)
- **Institute of Obstetrics and Gynaecology** (Women & child)
    - Centre of IVF & Human Reproduction
    - Adolescent clinic
    - Gynae Oncology clinic
    - High risk pregnancy clinic
    - Family planning clinic
    - Mature women clinic
    - Uro-Gynaecology clinic
- **Institute of Renal Sciences**
    - **Nephrology (Kidneys)**

    - **Renal Transplant Surgery (Kidney surgery)**
    - **Urology (Urinary tract problems)**
        - **Prostate Cancer Clinic**
- **Medicine**
- **Neurosciences**
    - Interventional Neuroradiology
    - Neurology (Brain, spine, nerve & muscle)
    - Neurosurgery (Brain & spine surgery)
    - Clinical Neurophysiology (Nerve function studies)
    - Sleep Medicine
- **Nuclear Medicine** (Tests for hormones, bone densitometry etc.)
- **Nursing**
    - Nursing Administration
    - School of Nursing
- **Oncology** (Cancer)
    - **Medical oncology**
    - **Surgical Oncology**
- **Ophthalmology** (Eyes)
- **Orthopaedics** (Bones)
    - Joint Replacement Centre
    - Scoliosis
    - Minimal invasive orthopaedic surgery (Arthroscopic surgery)
    - Sports medicine clinic
    - Aesthetic (Cosmetic) Surgery
- **Pathology** (Tests for tissue removed)
- **Plastic & Cosmetic Surgery**
- **Psychiatry** (Mental problems)
- **Radiology and Ultrasound** (X-ray & ultrasound)
- **Rehabilitation Medicine**
- **Rheumatology & Clinical Immunology**

- **Research**
- **Spine Surgery**
- **Surgical Gastroenterology & Liver Transplantation** (Surgery of Liver, pancreas, stomach & intestines)
    - **Liver Transplantation**
- **Thoracic Surgery** (Chest & lung surgery)
- **Transfusion Medicine** (Blood Bank)
- **Peripheral and Endovascular Surgery** (Blood vessel surgery)
    - Swollen leg and varicose ulcer clinic
    - Limb ischaemia detection clinic
    - Diabetic foot Care Center

## 1.2 Achievements:

- First whole body **CT Scan** unit in Delhi installed at Sir Ganga Ram Hospital.
- **Department of Nephrology India** and **Renal Transplantation**: Leading centre in the country with an active dialysis programme. Pioneers i**n CAPD program**me in India. Major renal transplantation centre with over 650 live related transplants in 10 years
- **Department of Vascular Surgery in India**: First dedicated **vascular surgery india** unit in North / Central India with a large no. of arterial bypass and endarterectomy procedures.
- **Department of Gastroenterology**: Leading centre performing wide array of endoscopic procedures.
- **Department of Minimal Access Surgery**: First such dedicated unit in all of South Asia. One of the surgeons holds the international distinction of the largest no. of endoscopic surgical procedures done by the single individual.
- **Department of Urology India**: First such unit in the private sector. Started endo - urology in 1975. Were the first unit performing urodynamic studies in North India. Extensive experience in percutaneous treatment of renal stones.

- **Department of Orthopaedics Surgery India**: It has the distinction of having the first bone bank in India.
- **Department of Paediatrics** and **Paediatric Surgery India**: First department in the private to develop paediatric sub-specialty services. The neonatology unit is the busiest in the private sector.
- **Department of Surgical Gastroenterology India** First unit of it's kind in the private sector. Performing complex surgical procedures on the pancreas liver and GI tract.
- **Department of Ophthalmology India**: Pioneers in phacoemulsification technique under topical anesthesia.
- **In Vitro Fertilization Unit**: Established in 1991, this unit has the highest success rates in the country with pregnancy rates of 25%.
- **Department of Homoeopathy**: Furthering the concept of holistic medicine, SGRH started the department which is the first of it's kind in a multi- specialty private hospital.
- **Department of Academics**: In order to keep abreast with the latest developments in the field of medicine, and to impart the latest information to students and consultants, SGRH created the department to raise the standards of training , patient care and research. This is the first of its kind in a private hospital in North India.
- **Department of Genetics**: It is the leading unit in the country performing genetic studies and providing counseling.
- **Department of Cardiac Surgery In India:** Dharam Vira Heart Centre has one of the highest incidence of Off Pump Surgeries in the country at 96.2% of total coronary artery bypass surgeries, including total arterial revascularization, sequential arterial grafting and "y" and "T" grafts.

During Dissertation visit to entire Sir Ganga Ram Hospital was done because data had to be collected from all places including parking lounge, car parking etc. None of the place in the hospital was left out of visiting.

## 1.4 Vendors Profile:

Sir Ganga Ram Hospital has two vendors serving it in its day to day critical work.

The vendor which is serving the non-clinical facilities is MTech India Pvt. Limited and the vendor which is serving on clinical hand is Intersystems which is a United Kingdom based Healthcare Organization. Both the softwares are neatly interfaced to deal with day to day requireemnts.

### 1.4.1 MTech India Pvt. Limited:

MTech India Pvt. Limited is a Product oriented Software Development Company specializing in Back Office Applications and Business Intelligence (Bi) Solutions. It has been in operation for the last one decade in providing innovative solutions to the clients. Prodigious Back Office Suite of Applications runs in various large and medium hospitals in India and abroad. Speedminer, Data Warehousing and BI Solution empower key people in the management to take informed decisions by extracting, slicing and dicing data in various combinations to suit their requirements. MTech has clearly defined objectives that set it apart from others. Commitment to Support Services with the aim of hundred percent customer satisfaction, embracing of new technologies and the use of Internet and e-commerce in the modern day business are a few of them. Promoters of the Company bring the world of experience to the enterprise from their successful careers in Hotels, Hospitals, Trading, Finance, Manufacturing, and Distribution etc. Commitment and single-minded drive to succeed are proven characteristic of each member of the Board of Directors and all these elements are rooted in a truly sound financial base.

**Prodigious:**

Prodigious suite of application is the flagship product of MTech. It is developed using Caché technology as the database. The product is an integrated back office application designed primarily for the Healthcare sector. The suite of applications consists of , Financial Management System, Purchase and Inventory Management System, Fixed Asset Management System & Human Resource Management System.

**Speed Miner:**

Speedminer DW and BPM is one the most comprehensive and fully integrated sets of data warehouse, business intelligence and business performance management solution available. Speedminer not only assists you in uncovering the wealth of information in your corporation to build the best Business Intelligence platform, but also to manage the performance of your business so that your business will always stay ahead of competition and excel. Database from various sources in a variety of formats are integrated into one common platform for users to access, analyze and share information to understand how their business is performing at any moment in time.

**1.4.2 Intersystems:**

It was Founded in 1978, InterSystems Corporation is a US$385,000,000 privately held software company with offices in 23 countries and corporate headquarters in Cambridge, Massachusetts. It provides the premier platform for connected healthcare, and its innovative products are widely used in other industries that demand the highest software performance and reliability. Its clients include TD Ameritrade, British Telecom, U.S. Army, Cleveland Clinic, Deutsche Bank, Johns Hopkins Hospital, Kaiser Permanente, Prudential Insurance Company, Volvo, and thousands of other successful organizations.

Leading application providers also leverage the high performance and reliability of InterSystems' advanced technology in their own products. These organizations include Epic Systems, Fiserv, GE Healthcare, Siemens Medical, and hundreds of others.

**Trakcare:**

InterSystems TrakCare® is a unified healthcare information system that lets authorized healthcare professionals access and work with complete patient records on tablets, smart-phones, or computers – anywhere they have access to the Internet.

TrakCare's analytics enable timely and more informed decisions about patient care, based on up-to-date information. This breakthrough system includes clinical, administrative,

laboratory, and community care capabilities, unified by a single data repository. Each patient's consolidated history can be shared securely across all care settings. TrakCare is used in 25 countries, with deployments that range from single hospitals to nationwide networks.

## 2.0 Managerial tasks performed:

During implementation process I was engaged in following areas:

**a. Manual data collection in the hospital:**

The Data was collected for fixed assets, That was a very difficult task for us because a lot of times the OTs were busy but we had to go there and collect data. A lot of times people were very rude to us because they thought we are just hampering their work, we had to convince them and explain them why we are doing so because the almost entire hospital staff was unaware of this FAMS. A lot of times we did not get the full details of assets because they were being used on the critical patient so it just delayed the process of data collection because we had to again go back and see whether that asset is free now and get its details.

**b. Entering data into excel sheets:**

First our team used to collect data in the first half of the day and then in post lunch we used to enter data into excel sheets which were then exported to MS access for data cleaning.

**c. Data cleaning:**

During data cleaning the data was classified according to its purpose, its material etc. Example: medical and non-medical assets. As different data collector used different vocabulary for same thing so to correct that a standard nomenclature is given to those assets in data cleaning.

**d. FAMS testing:**

In system testing, each and every functionality was tested; software testing was assigned to me and a programmer. We did scenario testing and took screen shots with description of the bugs and sent those to vendor which got rectified later on.

**e. Designing workflow of FAMS:**

As there was no workflow of the software provided by vendor to the Hospital , so the workflow was designed for Fixed Asset Management System, which organization will use at the time in-house training of FAMS users.

**f. Finding ways to overcome limitations during the implementation of FAMS through FMEA:**

Failure Mode Effect Analysis was done for FAMS of various failure modes and their possible causes and consequences and then after analyzing and discussing problems with the key users and management, we came up with the recommendations which they are going to implement in their process and improve the effectiveness of FAMS.

## 3.0 Learning:

At each step of Fixed Asset Management system implementation there were several leanings which are as follows:

**a. Implementation strategies:**

Different implementation strategies were discussed with their pros and cons for successful implementation FAMS.

And at some places when our anticipated process dint work, we tweaked the processes.

**b. Policies of including data for fixed asset such as what assets should be included for FAMS:**

Got familiar with all kinds of assets are there which can come under fixed asset title and which asset will be count separately and which will considered as part of building establishment and which asset will be considered as hospital property and which is not. Consumables were not counted as fixed assets even if they are very expensive because they are used only one or two times and then they are disposed.

**c. Process of getting financial data:**

The strategies was Discussed and applied for how to get financial data without wasting too much time; for that the corrected and printed sheets should be sent so that rechecking of assets can be done so that if by mistake there is any item which is missing in the data sheets or included but that is not a fixed asset, can be corrected along with the getting financial data of the department stock.

**d. Dealing with financial discrepancies:**

To deal with financial discrepancies either reference from other records should be taken or the expert advice should be taken who knows market values of assets. And if the assets are very old and there is no record then arbitrary value should be given to that asset let say 1 rupee, doing so will let the system recognize that asset as an asset in the system because system can't take Zero value.

**e. The areas which are more prone to produce errors in the data collection:**

During the entire tasks the failure modes of FAMS were realized that where it can go wrong and we tried to correct them through recommendations.

**f. Classification of assets:**

The Assets were classified on the basis of their use and how critical they are for patient and what kind of instrument it is so the classification was done with the combination of multiple criteria.

**g. Software functionalities:**

Various important areas of fixed asset management were covered and its importance was realized. This helped us designing workflow of FAMS

**h. Workflow of FAMS:**

Software testing gave us the way to design the work flow of FAMS which will be used for the user's training.

**i. Dealing with limitations with implementation process:**

There were various limitations on every other phase in implementation of FAMS so I have summarized them up in FMEA in system analysis and tried to recommend various possible suggestions. And came up with the most critical failure modes which can affect Hospital financially.

**j. Software testing and identifying bugs:**

system testing was done randomly as well as with defined Scenario and various bugs were been captured and got them corrected with the help of vendor.

**k. Data cleaning:**

In data cleaning the assets were sorted and classified. Uniform nomenclature to various assets was given to the data collected from various data collection team. This reduces the ambiguity in the recognition of the same asset.

# Part –II

## 1.0 Introduction:

The hospital is a 650-beded multi-specialty state-of-the-art Hospital in India. It is one of the hospitals which maintain 100% bed occupancy so it has a large number of fixed assets. But there is no such complete centralized system which has full details of all assets that

can help management in decision makings. Though there are paper registers at every department but these registered are not centralized so that they can be easily accessible whenever needed. Some registered may not have full detail of the assets such as its date of purchase ,annual maintenance contract, warranty policies, serial numbers ,model numbers, expected life, purchasing cost , its vendor and supplier etc. Sometimes it is very daunting to go through all record when you need just one single information because. Though there were some areas which maintained the Asset record very well but there were some which did not have that quality record so there was no standardization of the documentation.

Sometimes the current location of the equipment is not known to anybody. In case of inter-departmental transfer there is no proper documentation about which equipment got transferred to which department. Some equipments which have been disposed of a long time back but still they are not got updated in the record or the asset which has to be disposed, is still lying there and occupying space.

There is no such efficient centralized system which can generate the reports for total depreciation of the equipments and identify assets which can run out of their maintenance contract in few days or months, what is the total book value of fixed assets of the hospital at the particular day. So the problem seems to be "**Poor Fixed Asset Management in the organization".**

So to resolve all these problems organization decided to implement for Fixed Asset Management System.

## 2.0 Literature Review:

Every hospital has significant investment in fixed assets such as land, building, fixed equipment, infrastructure and moveable equipment. In a hospital moveable assets movement is very fast so an asset lying at one place may not be there next day, in such a condition the asset tracking is quite cumbersome process, on top of that hospital may not have information of all assets that they hold in their organization, management may not be aware of state of old equipment and need of new equipment and its cost, they may not know the return on investment (ROI) of the assets which they have in their organization.[6] They may not be having any centralize system which can tell the current location of each asset. Housekeeping may not know the actual inventory of their holdings, the actual state of the holdings, the replacement schedule of the materials and inventory, the costs of the repair and services. Maintenance department may not have an inventory control of all the equipments and spares, knowledge of the service schedules, Know the service dates, in / out transfer of the equipment, Inventory of the department & user identification, Insurance particulars, Replacement particulars, Budgetary provision and the periodical expenses of each and every asset under their control.

Operation Theater managers may not have complete control of all tangible assets, may not know the physical presence with their numbers and condition, have adequate data for requesting new or update equipment, have control over their budgetary spends, Idea of their equipments depreciation for processing requests for replacements or history of the repairs and services for petitioning for rates with the suppliers, Physical position of the movable furniture like the OT stretcher etc.. Likewise other areas also have problems which their fixed asset management.

So there should be a solution which should have capability to resolve all these problems, it should provide the ability to hold as much information about their assets as they want such as Asset serial numbers, its location details as well as accounting information on purchase cost, replacement value and book price. They must hold every accountable asset on it from non-medical kitchen equipment, vehicles, soft furnishings, contents of their latest up-to-date

operating theatre. It must contain all the assets of equipment needed to run a modern hospital. Every piece of hospital equipment is now to be accounted for in the database. Hospitals must be made to become confident that their asset management system and procedures now represent an accurate picture of the hospital's assets.[5]

There should be policy in place in the organization so that every asset purchased must come through asset management department and that it is already entered into the system for the departments. Annually, a detail asset list report can be produced which allow custodians to confirm the total asset they have with correct location, ownership and its book value.[7]

Asset management system is to be designed to quickly build an accurate, centralized database of asset and to keep it up to date because assets get more or transferred or even disposed of without the management being informed. Each month, as part of their reconciliation exercise, asset number labels are to be produced for any new assets that have come into the hospital. A member of Assets Management's team is to be then charged with tracking down the asset in the appropriate department and sticking on its asset register label. The Management can be confident that they have 100% of their assets captured within the Asset Management solution, only by, being a part of the process.[4] Any asset that is purchased has to be approved and updated in the Assets Management Solution, and that becomes its point of capture.

One of the biggest challenges Hospitals face in implementing the processes and getting other staff on board that the hospitals do not generally regard keeping track of the assets as a top priority, especially in operating theatres and day surgery units with a busy workload and where they have a lot of expensive equipment that moves about.[3] They just want to know that the asset is there when it is needed – not that it is being monitored as part of standard financial procedures – and the Assets Management system helps us do just that. A Fixed Assets Management System provides much more than just an asset register. It's also a financial tool for modeling, forecasting and estimating.

Being able to predict with a degree of accuracy, what the financial commitments are going to be is of enormous value and during the proposal stage of any new purchases or expenditure, they can be used to continually produce additional cost estimates, all because of the power of

the asset register and the information it contains. A good Fixed assets management solution, with a comprehensive record of each individual asset, displayed in a manner that is easy to use, can generate a wide variety of reports in a number of formats from standard spreadsheets for departmental use to accounting estimates delivered directly into the financial package ( if the organization prefers to integrate)[2]. RFID can also be used for Asset tracking but it affect the patient condition so it is not suitable for a hospital over than it is not much effective in identifying all assets if they are in bulk.

There are some General Policies of fixed asset management which are discussed as follows:

**Definition of Fixed Asset criteria:**

Fixed assets, which meet the appropriate cost and useful life criteria (described in Definition of Fixed Asset Criteria), are grouped in the following categories:

- **Land**

  Real estate without any land improvements.

- **Land Improvements**

  Onsite sewer and water lines, paving of driveways, parking and other areas, curbs, sidewalks, retaining walls, fences, signs and yard lighting, etc..

- **Buildings**

  Foundations, walls, floors, windows, doors, stairways, skylights, roof, interior fixtures, fire escapes, storm sash, screens, Venetian blinds, linoleum and tile floor coverings, architectural fees, consultation and legal fees, etc., plumbing and sewage systems, heating systems, ventilating systems, air conditioning systems, electrical fire protection systems, building elevators and service systems.[1]

- **Equipment**

  Fixed Equipment-equipment affixed to the building, fume hoods, autoclaves and sterilizers, dormant scales, etc.

Moveable Equipment-office furniture, fixtures, and machines; window and plug in air conditioning units; electric water coolers, operating room equipment; major medical instruments and equipment; laundry equipment; cafeteria and kitchen equipment and furnishing; and vehicles licensed and not licensed for operation on the highway.

❖ **Library Books**

Periodicals, texts, journals, books of reference and other books for use in the libraries.[1]

Every organization has its own set of criteria such as an asset which cost more than $2000 and has expected life of more than one year is known as fixed asset.

There are various kind of equipment fixed asset which a hospital may be having, these are:

- **Capitalized asset:**

  It is personal property that has a single unit value of $1,000 or greater and an estimated useful life of more than one year. (This is the definition used by the State of Texas.)[10]

- **Capital lease:**

  It is an agreement whereby the lessee substantially assumes all risk and benefits of ownership as specified under the rules of Generally Accepted Accounting Principles.

- **Controlled assets:**

  Assets which qualify as personal property but do not meet the capitalization threshold are Controlled Assets. However, they are secured and tracked due to their pilferable or hazardous nature.

- **Debt financed asset:**

  It is one that is purchased with debt instruments such as commercial paper, general obligation bonds, or revenue bonds.

- **Equipment held in trust:**

They are assets held by an entity on behalf of a non-state entity (such as art collections owned by families, estates, and others) and which are under the temporary control of the entity.

- **Group basis**

  This refers to multiple property units tracked under one property record (for example, 100 desks having the same physical characteristics, value, and acquisition date).[9]

- **Operating lease**

  It does not satisfy the capitalization criteria and does not need to be considered a capital asset for state property accounting purposes.

- **Personal property:**

  It is any possession on which there is full ownership of asset by the organization. Personal property does not include consumable assets nor does it include real property, such as land or buildings, improvements to land or buildings, or infrastructure.

- **Real property:**

  This includes land, buildings, improvements to land or buildings, and infrastructure.

The basic phases of the fixed asset management process are:

- Determine fixed asset needs; create a plan to fill those needs.
- Establish the nature, scope, and
- Location of fixed asset management in the organization structure.
- Identify, document, and implement the policies, procedures, and controls needed to implement the plan.
- Purchase the assets. (See the Procurement Module.)
- Receive, inspect, inventory, store, and distribute the assets.
- Repair and maintain the assets.
- Dispose of damaged, obsolete, or unneeded fixed assets.
- Record and report fixed asset transactions.

- Monitor and evaluate the fixed asset management process.

Common key variables in fixed asset management include:

- Count accuracy
- Document number control
- Hidden fixed assets
- Fixed assets at vendors or on loan
- Count value extension
- Cutoff documents
- Unit of issue accuracy
- Reconciliation methods
- Rust and dust on material
- Asset description
- Obsolete assets
- Count versus record differences
- Lost tags or lists

These key variables should be carefully taken into consideration for each variable and should have standard policy because the reports are going to be prepared out of these.[8]

The types of reports which can be produces are as follows.

- ❖ Total book value of assets in a department.
- ❖ GRN reports about new assets brought to the organization.
- ❖ Maintenance reports.
- ❖ Tax and financial reports.
- ❖ Fixed Asset movement report.
- ❖ Fixed Asset disposal reports.
- ❖ Issue/Receive reports.
- ❖ Purchase order generation reports.

- ❖ Vendor returns reports etc.

There can be many other such reports which can help organization in making important decisions for the organization and benefit organization as follows:

- Over payment of taxes
- Incorrect budget forecasting
- Over expenditure on functionally obsolete assets which are beyond repair.
- Incorrect reports of net fixed asset value
- Difficulty in tracking an asset.
- Incorrect financial reports.
- Lack of control in asset transfer.
- High cost and time consuming audits
- No control of theft management.
- Incorrect insurance costs and inadequate coverage.
- Poor purchase decisions.
- Inadequate control and processes

## 3.0 Introduction of Software:

**3.1 Workflow:** There are two work flows one for purchase and asset transfer and other is for asset maintenance and disposal, these are shown as follows.

### A. Asset Purchase and transfer:

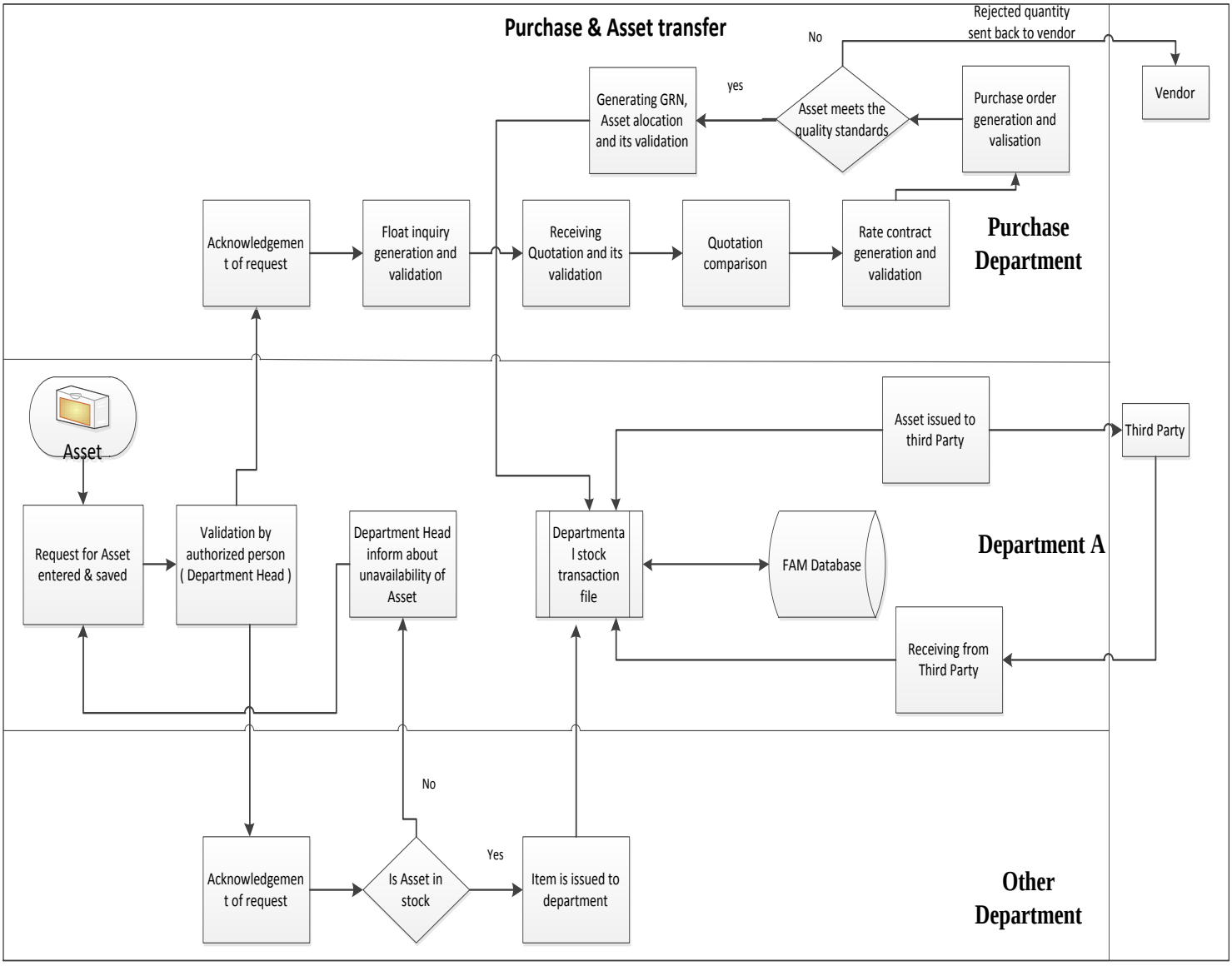



**Figure-1***(Workflow of Asset Purchase and transfer)*

## B. Asset Maintenance and Disposal:

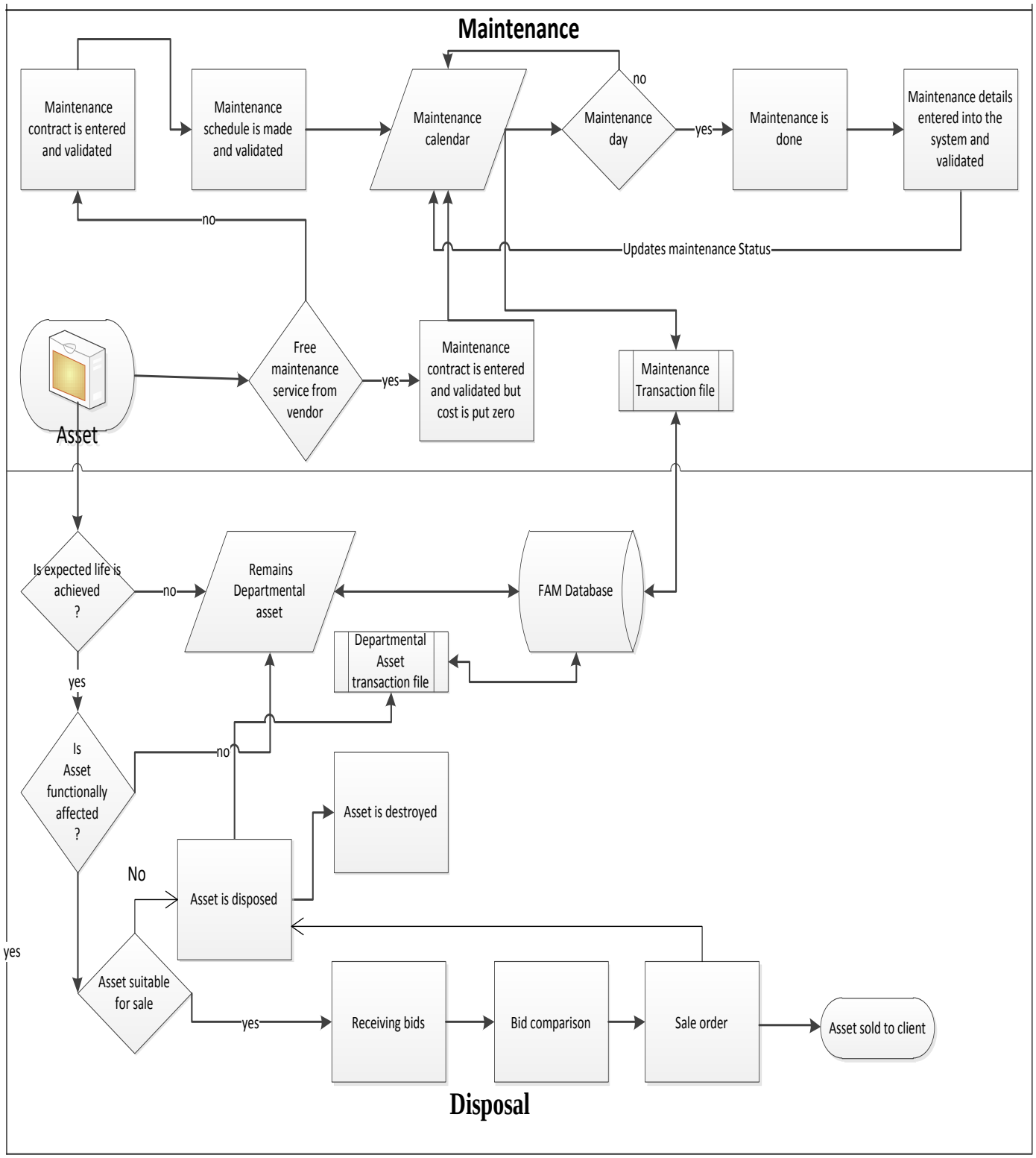



**Figure-2** *(Asset Maintenance and disposal )*

## 3.2 Fixed Assets Management Module:

This module is an important module of prodigious, it helps in managing fixed assets in terms of its requisition from the department, purchase, maintenance, disposal and transfer. It helps the user to keep track of each and every fixed asset, tax calculations, insurance cost calculations etc.

This module is divided into five parts:

A. Masters
B. Sales, purchase and others
C. Depreciation and maintenance
D. Reports

### A-Masters:

Masters are the first data to be configured , these provide the key elements which work as backbone of the software.These masters are as follows:

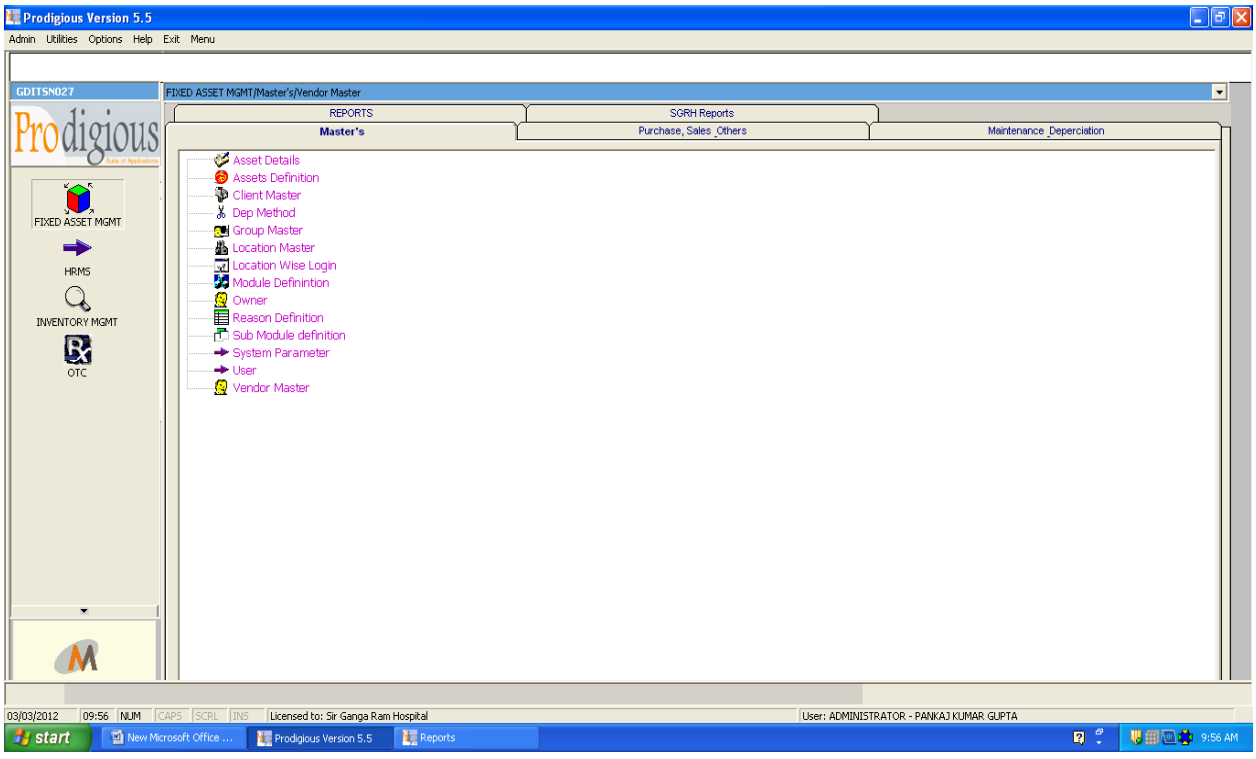



**Figure-3** (*Masters of FAMS )*

**a. Group Master:-**

Group master is used to classify assets in terms of major group and the subgroup of the asset.

Example- If there are assets such as **Dell 15Z, Lenovo Z570** then they will belong to subgroup called LAPTOP and group called Computers and Ancillaries.

In one group there can be various subgroups.

At the time of creating a group user enters the name, the depreciation method, owner of the group and the user of the group, remarks.

Same field are entered in case of subgroup also. The depreciation method and the owner and users defined in group automatically get tracked for subgroup but if user wants to change these specifications, she/he can change that for particular subgroup. And finally the enterd data is saved.

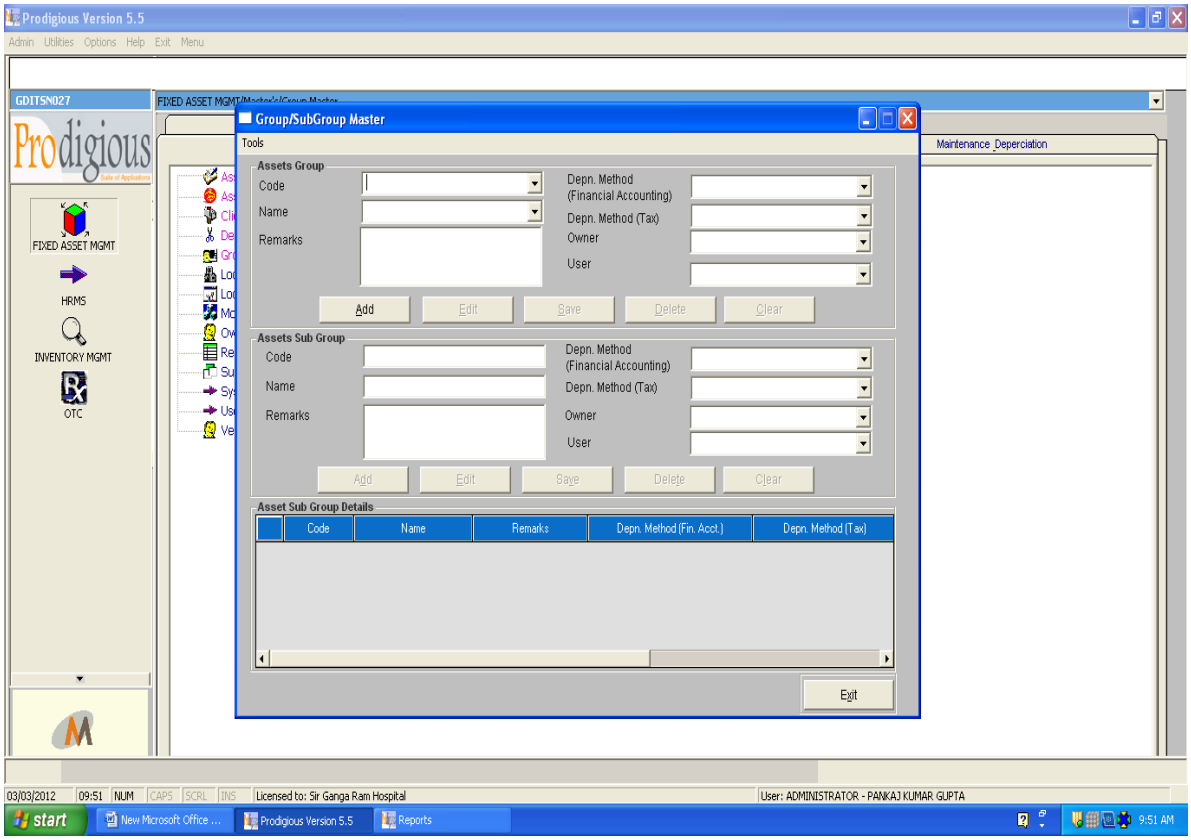



**Figure-4** *( Asset Group Master )*

## b. Location Master:

Location master is used to configure various possible locations such as departments, some specific areas etc. These are the locations which play a major role in requisition, asset allocation, asset transfer, disposal etc.

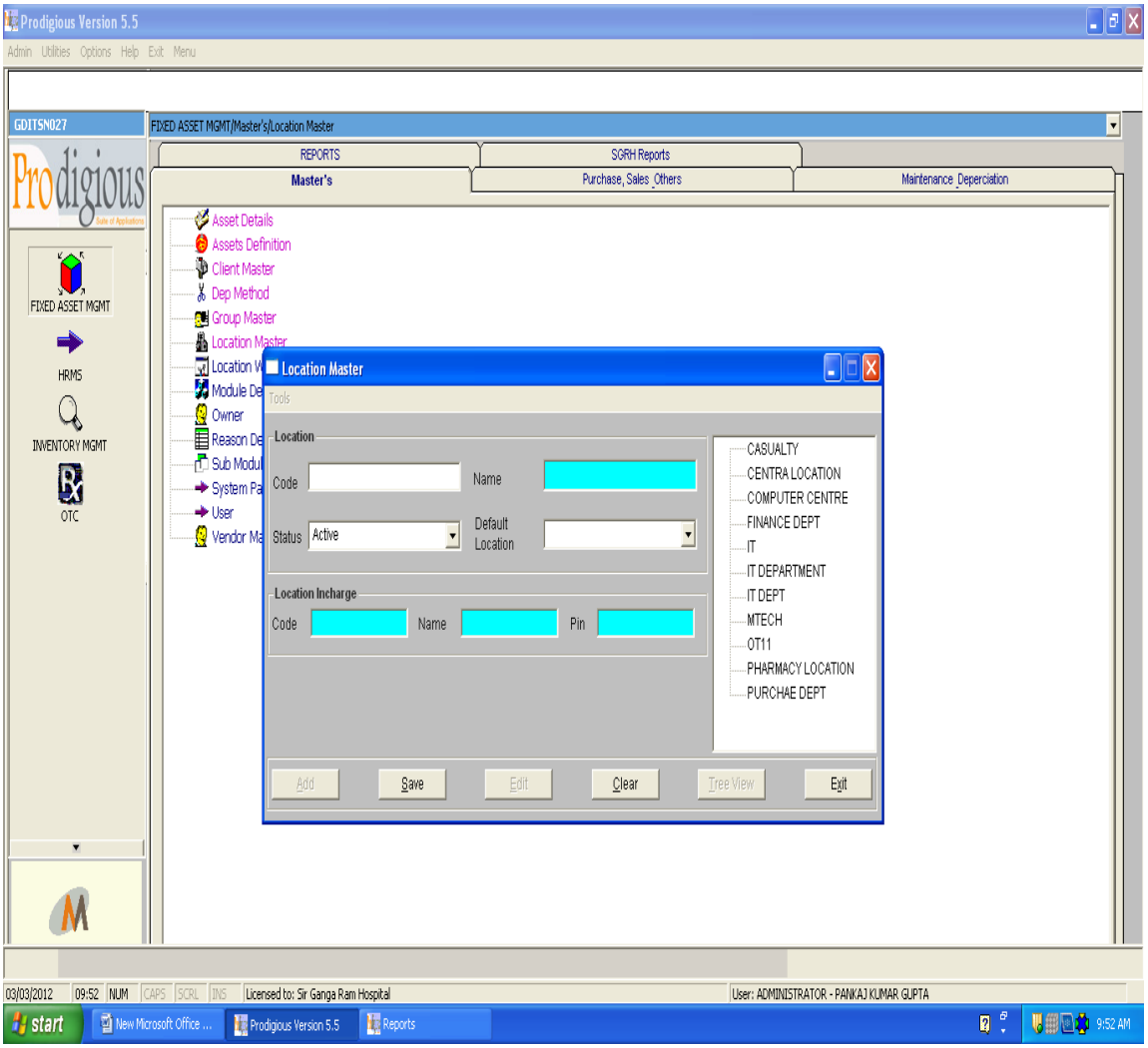



**Figure-5***( Asset Location Master )*

At the time of creating a new location system asks for the name of the location, the person in-charge, his/her name and his secure pin code. And finally the enterd data is saved.

## c. Vendor master:

Vendor master is used to configure vendor's details of the hospital.

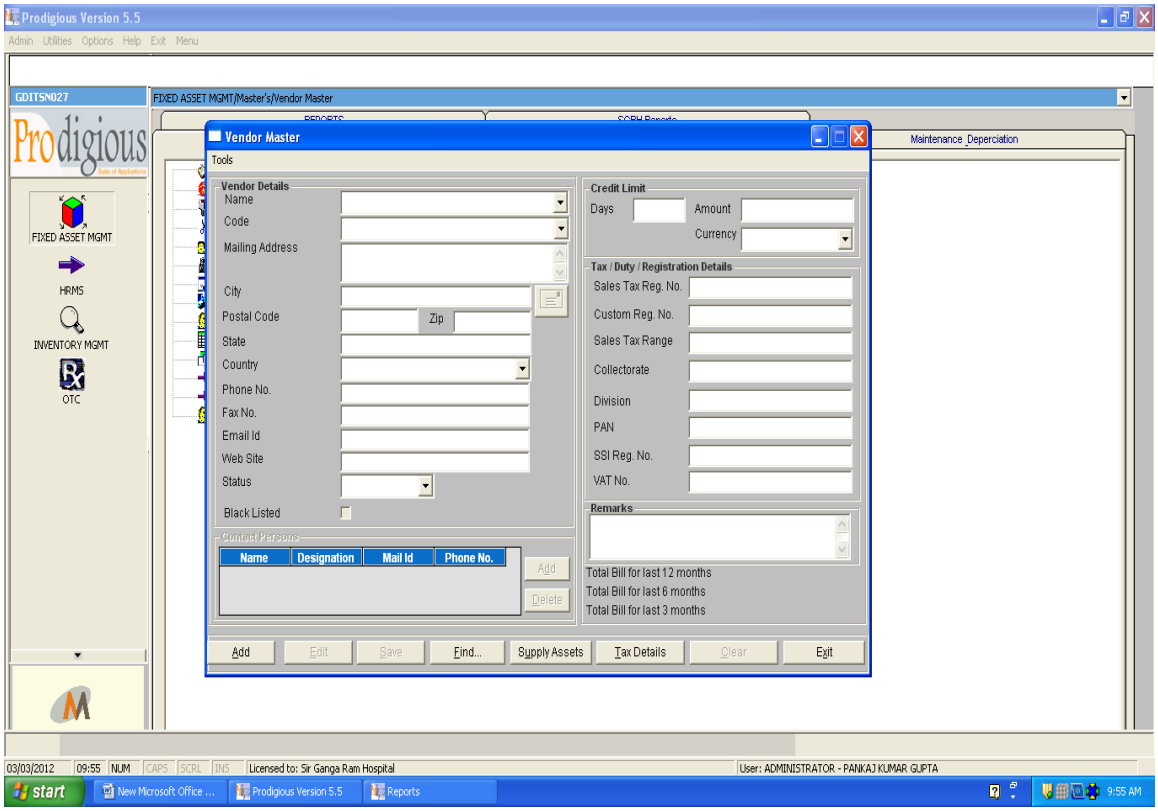



**Figure-6** *( Asset Vendor Master )*

At the time of creating a new vendor, system asks for details such as its name, mailing address, email id, website, the person who should be contacted there and his/her designation, phone number.

Along with this system asks for some non-mandatory field such as credit days, credit amount, currency, sales tax registration number, custom registration number, sales tax ranges, collectorate, division, PAN, SSI registration number, VAT number and remarks.

When we click the button called Supply Assets, the system shows two options three options

- Add new Asset
- Add asset
- Remove asset

Through Add new asset button we can create a new asset then and there in the account of that vendor. On the other hand through add asset button we can add assets in the account of vendor which already have been created in the system. System also provides the facility to find and edit details of vendor. Remove button helps in removing assets which that vendor does not supply any more.

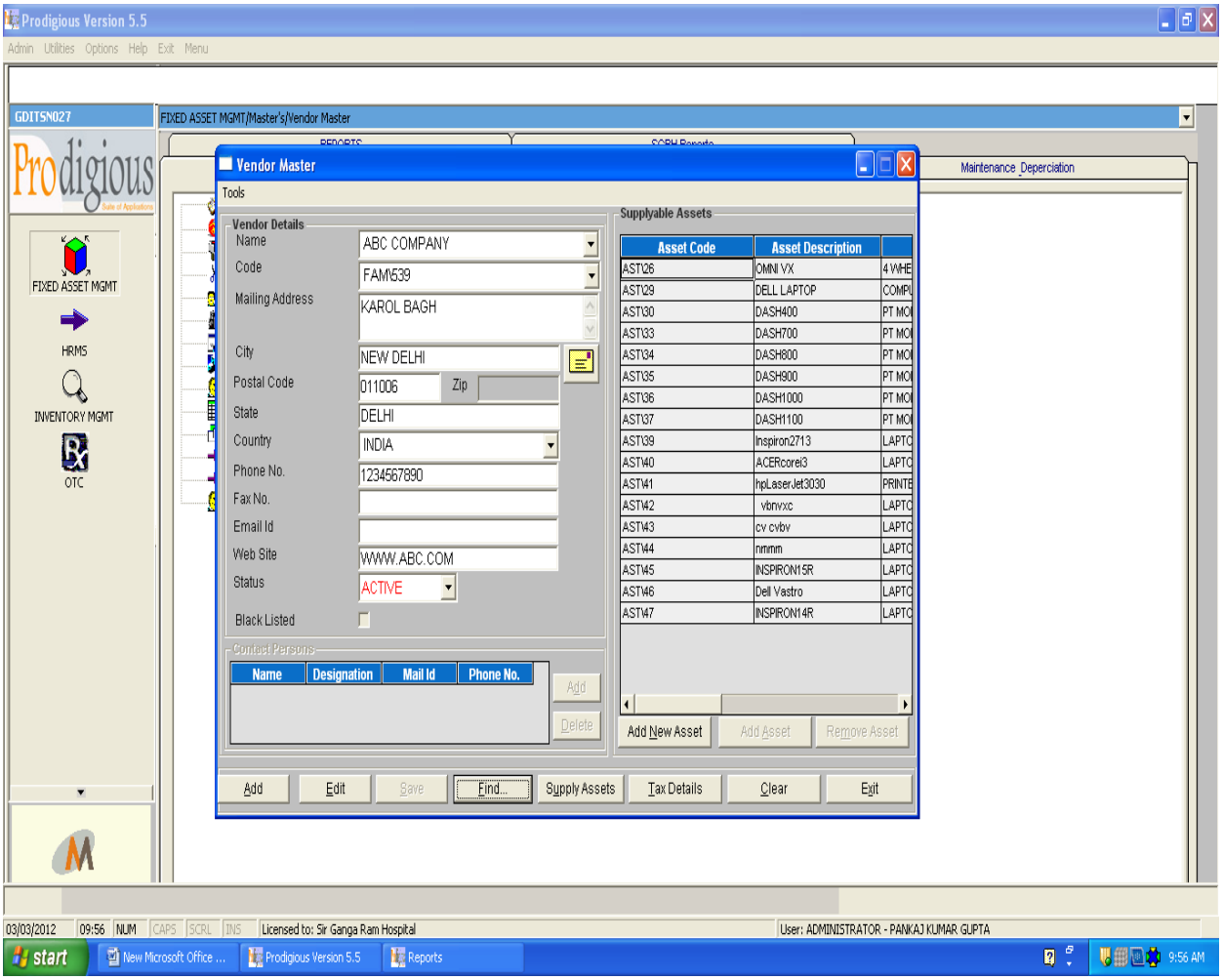



**Figure-7** *( vendor's Asset Display )*

So as soon as we save the data and click on supply assets of that particular vendor, system shows all assets which vendor supplies. And finally the enterd data is saved.

**d. Client master:**

Client master is used to configure the client of the hospital. A client could be any organization or other hospital of even a person, whom hospital would like to sale the assets after its disposal or to issue an asset to the client for a while.

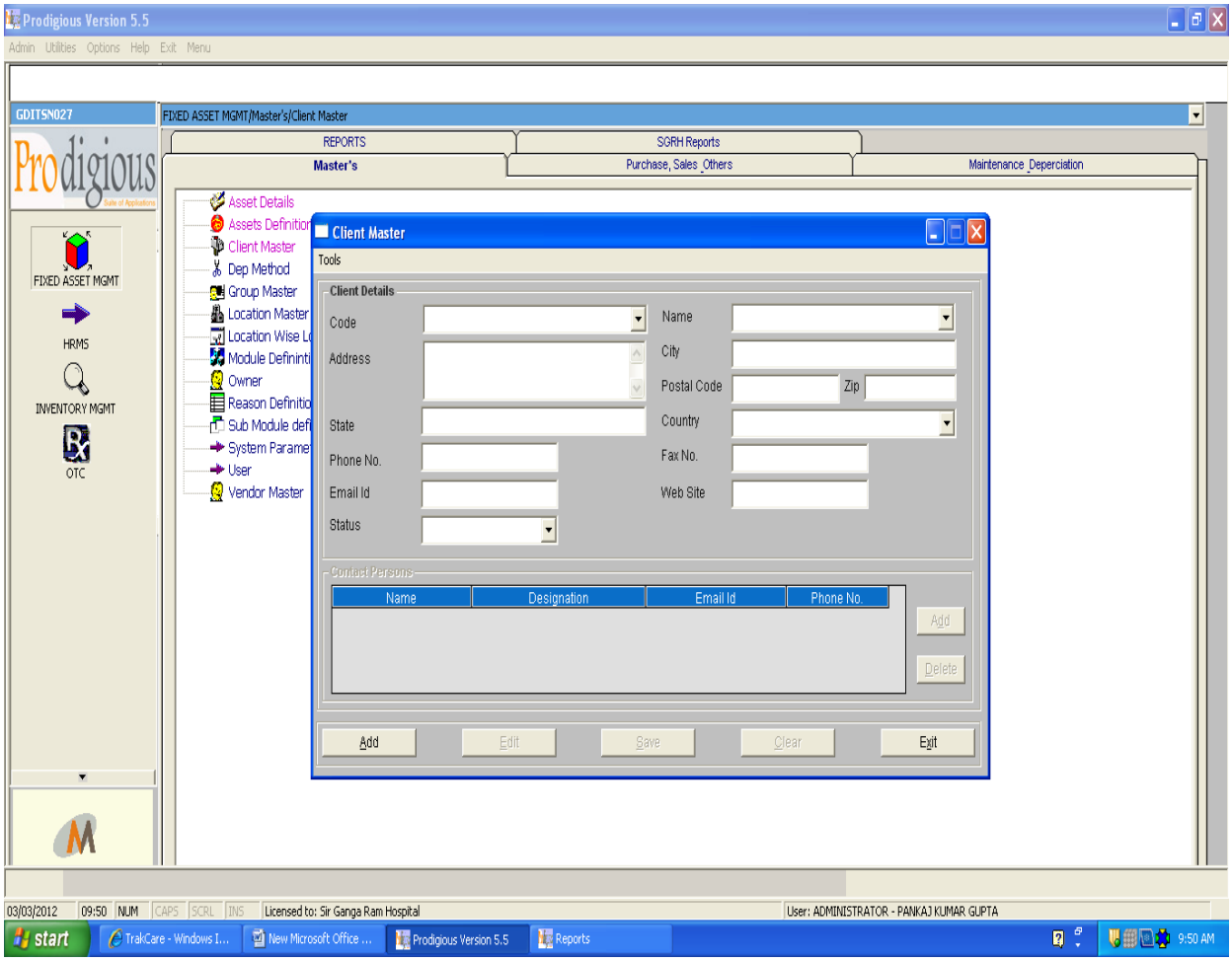



**Figure-8** ***(****Asset Client Master* ***)***

At the time of creating a client, system asks for its name, address, email id, website, person who should be contacted in the organization, his/her designation and contact number. After saving the record the details can be edited through edit button.

**e. Depreciation method:**

Here the user can list various types of depreciation methods which the organization is using or possibly may use in future for the calculation of depreciation of its assets. The system has the provision to define new depreciation methods if required. Different depreciation methods can be used for taxation and financial accounting. The depreciation method used for each asset could also be different. Depreciation can be charged annually, monthly, bi-monthly or quarterly specific to an asset.

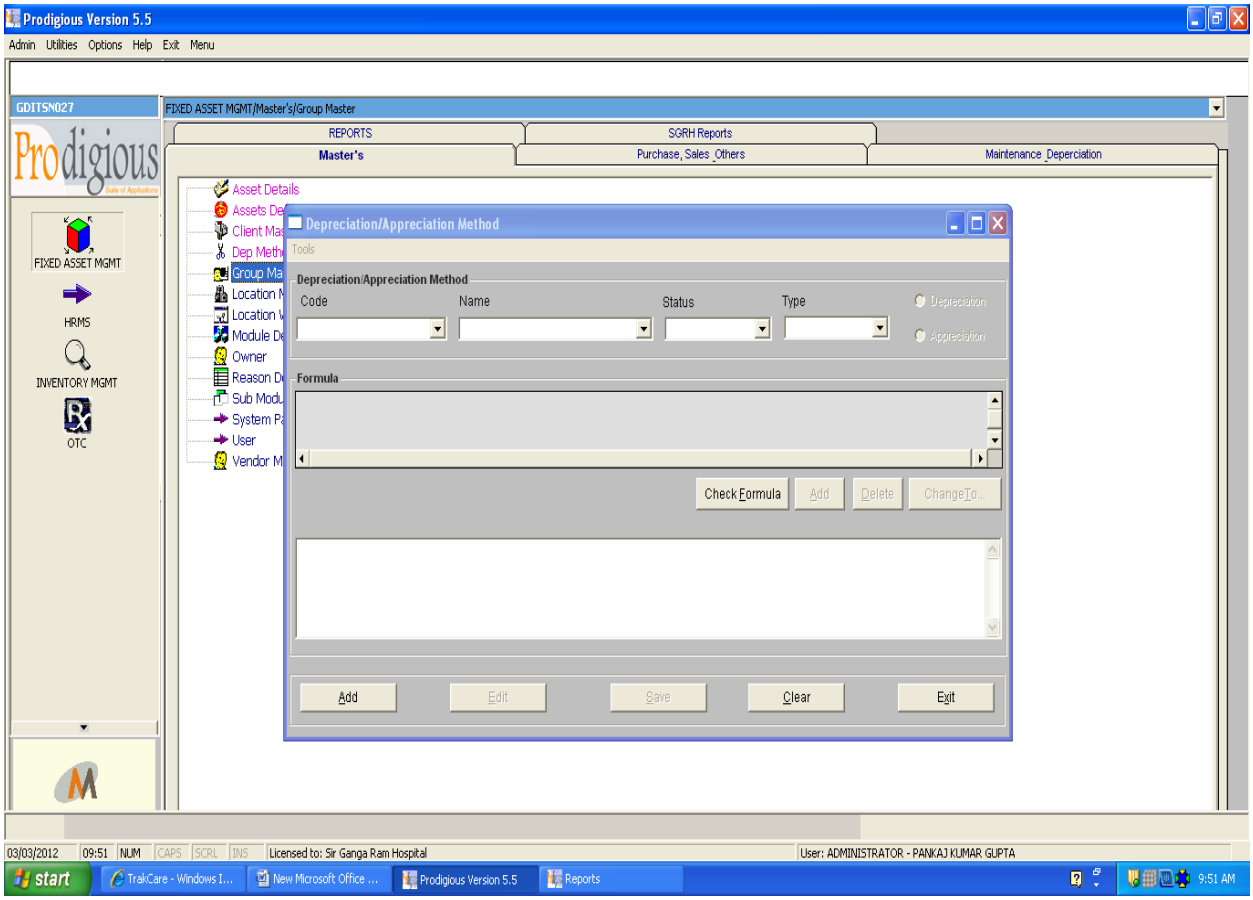



**Figure-9** *( Depreciation Method Master )*

While creating depreciation method system asks for the name of the method, status (active/ inactive), type (user defined or system defined), and the formula for mathematical calculations.

## f. Asset definition:

Here the user can define new assets purchased by the organization. User can also view / edit the existing assets in the organization. The various components of an asset can also be defined here such as asset group, its subgroup, its name, its owner, user and remarks if any. User can also define depreciation formula for financial and tax calculations, if there are various vendor of the same asset then those can be linked with the asset.

If there is any asset which is made up of various components then those can be added in the asset also but in this case each component should be entered into the system as an individual unit and then only they can be added.

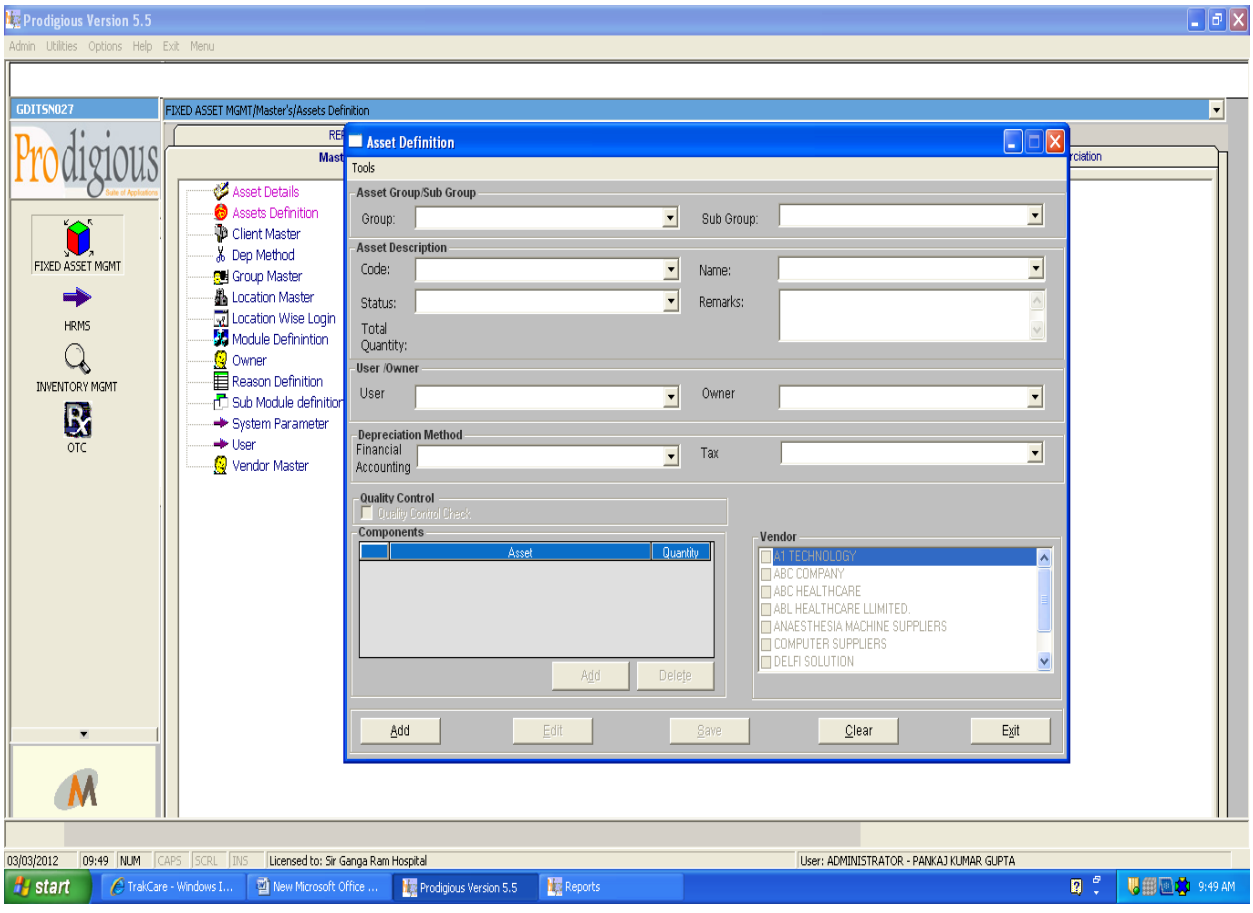



**Figure-10** *( Asset Definition Master )*

But doing so can be little problematic at the time of sending one part for repair because when we club assets, it automatically deletes the previous history of individual assets and make a new asset.

### g. Asset Detail:

Here the user can enter the details of the assets like the asset number, depreciation details, vendor, PO number & date, GRN number & date, serial& model number of equipment, specifications, installation date and charges, maintenance details & schedule, etc. The system also has the functionality to record the details of "Asset in Progress", and keep track of the budgeted amount and the actual amount.

When we click add button there are 4manadatory fields: Asset group, subgroup, name of asset and status.

User can find the details of previously entered assets by find button; these details include general details like its GRN no., purchased quantity, serial, number, model number etc., depreciation/ appreciation details such as depreciation formula, book value, salvage value etc., maintenance details, maintenance contract details.

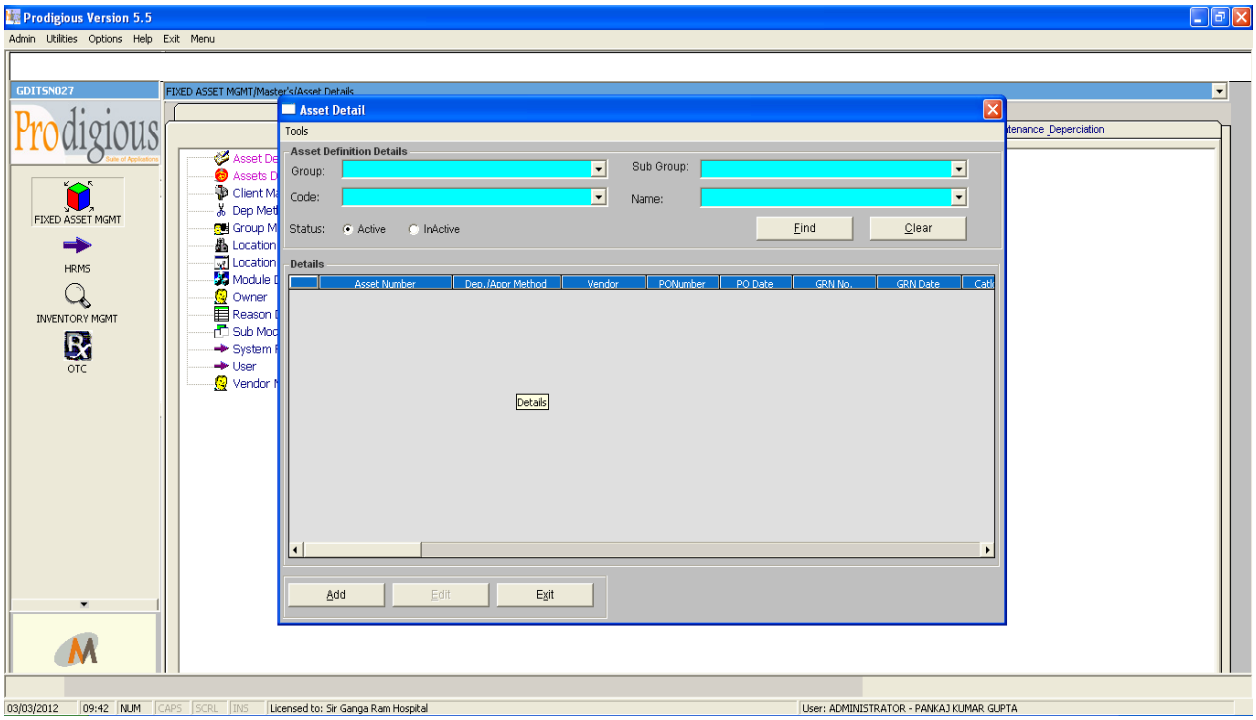



**Figure-10a** *( Asset Detail Master )*

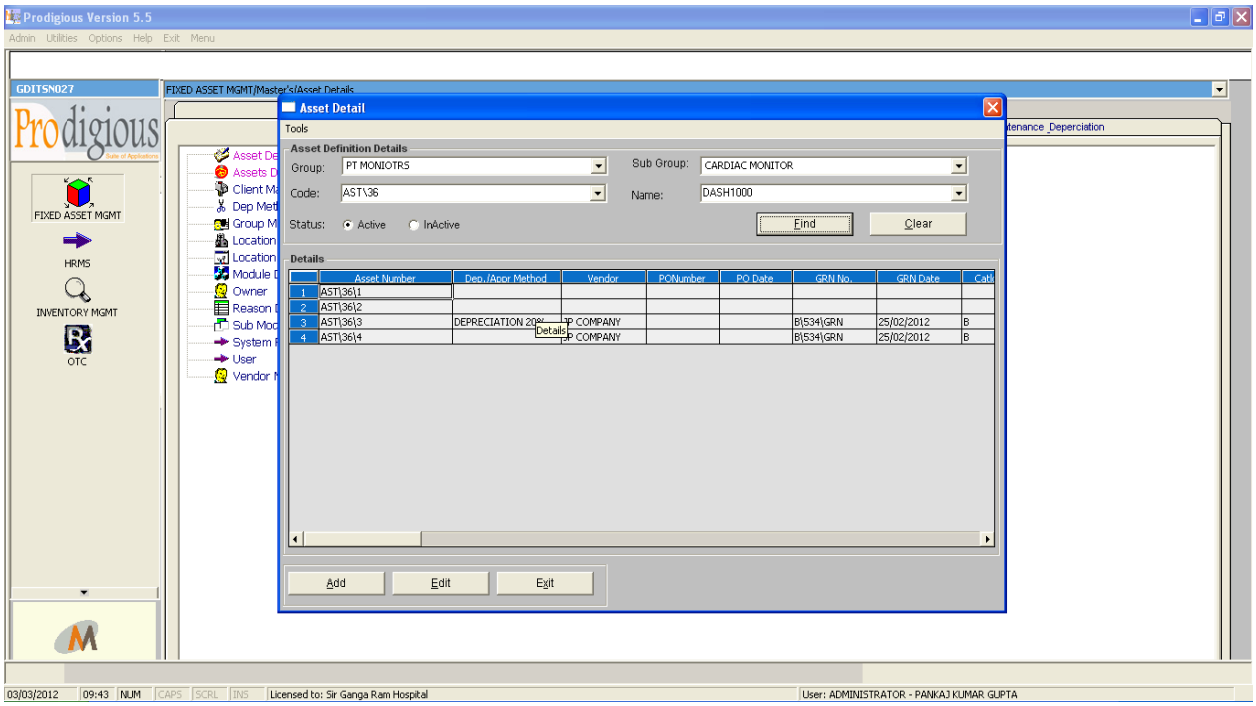



**Figure-10b** *( Asset Detail Master )*

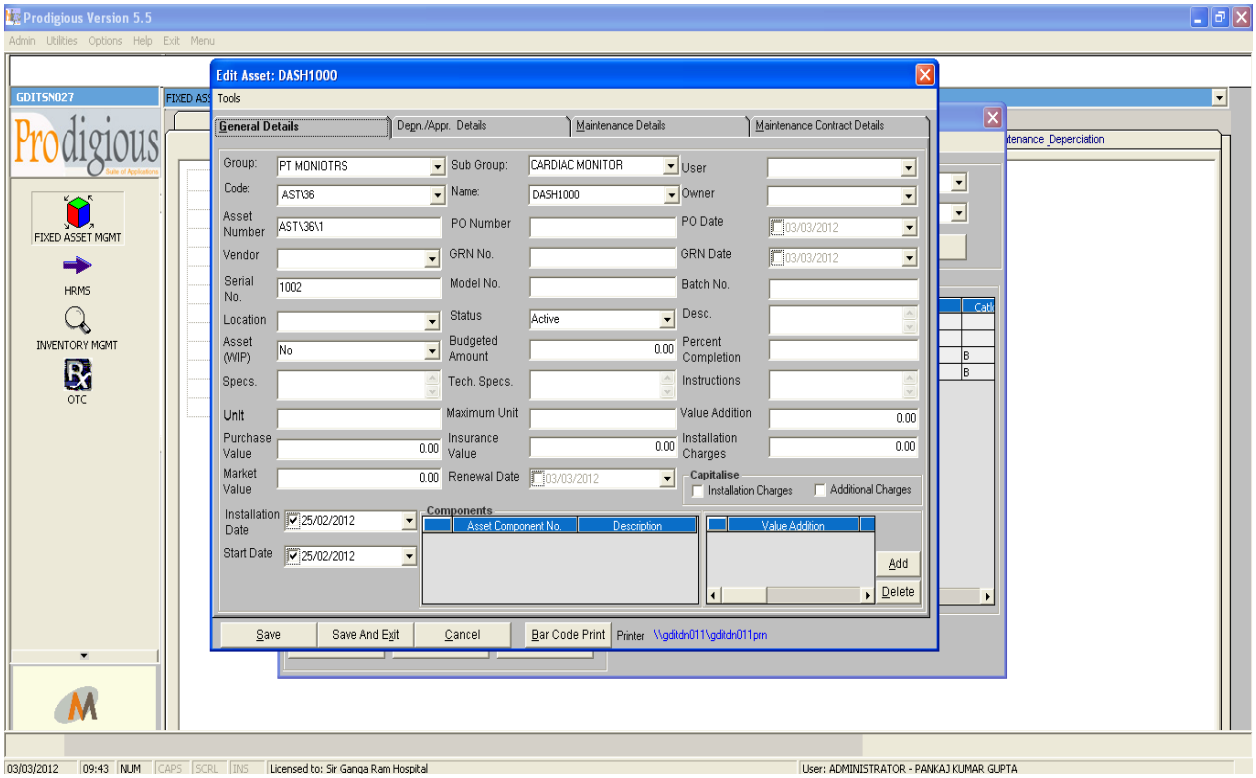



**Figure-10c** *( Asset Detail Master )*

## h. Owner Master:

Here user can define the possible owner of the Asset in terms of its name, address, email id, telephone number, status ( active/ inactive ) and remarks. Owner can be a department or area or any employee.

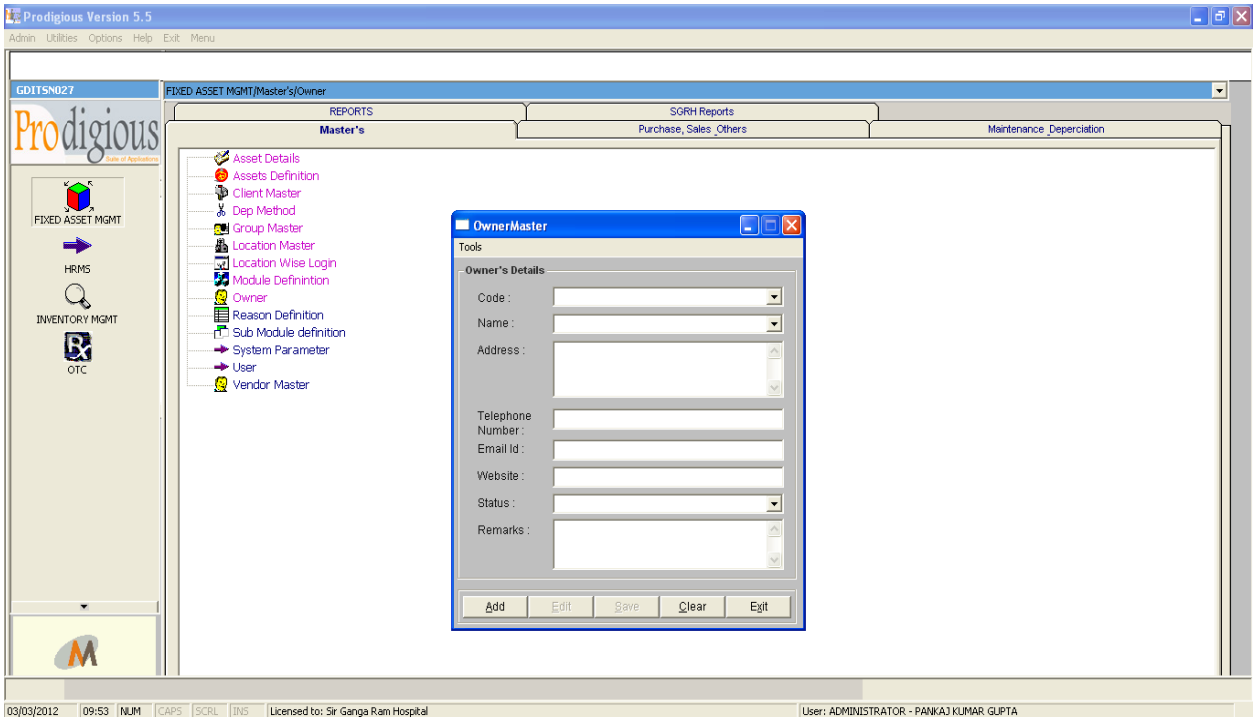



**Figure-11** *( Asset Owner Master )*

## i. User Master:

Here user can define the possible user of the assets in terms of its name, address, telephone numbe, email id, website, status (active/inactive ) and remarks. User can be any department or area or any employee.

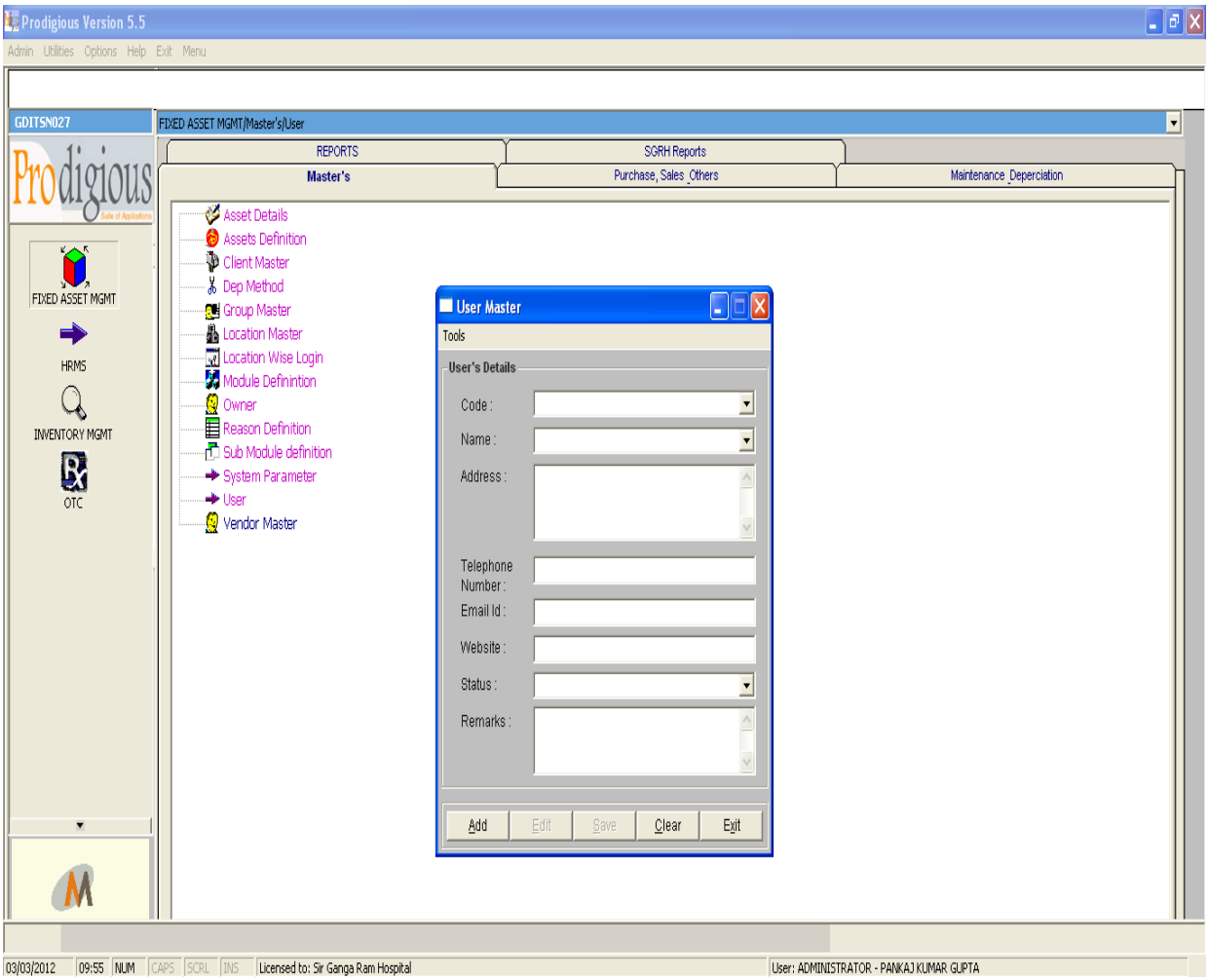



**Figure-12** *( Asset User Master )*

## j. Reason Definition:

Here Possible Reasons for the various activities such as closing a purchase order such as forced close or wrong entry and its status ( active/ inactive )are defined.

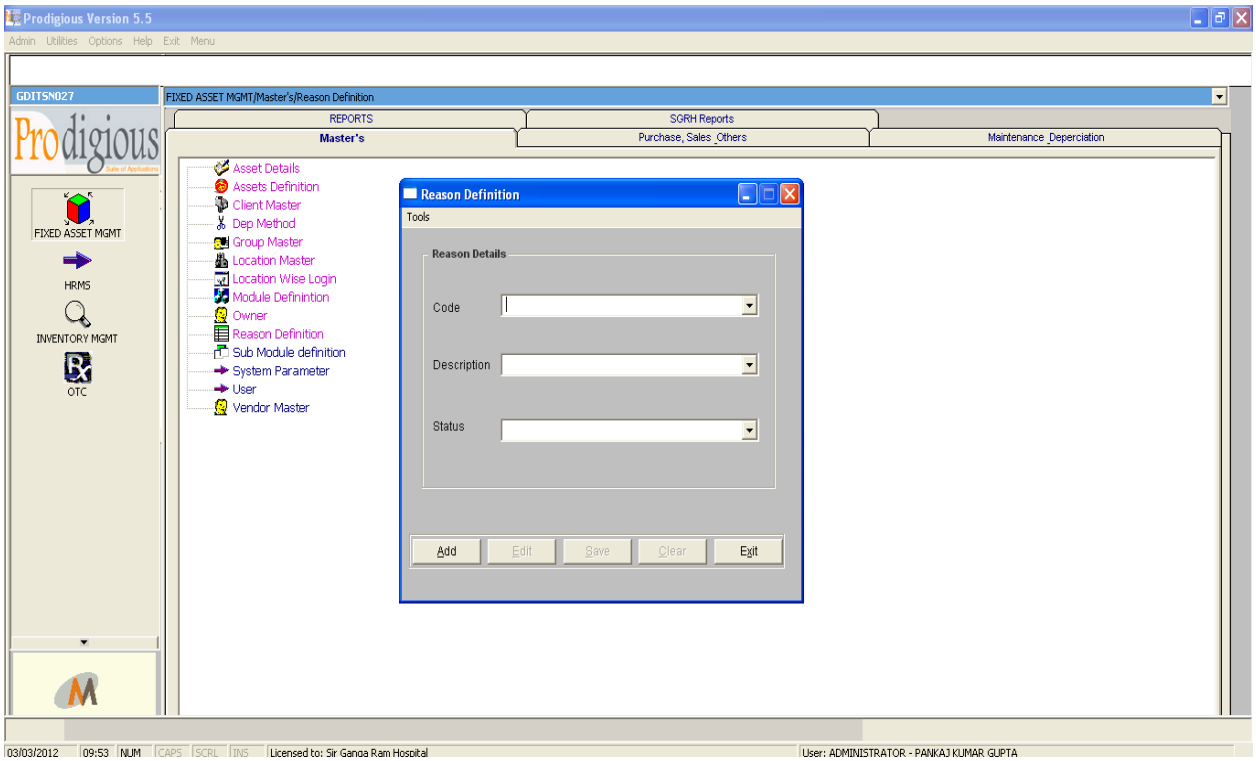



**Figure-13** *( Reason Definition Master )*

## k. System Parameters:

Here various system parameters are define such as :

- **General Parameters**
  - cost sheet required ( always/ never/ PO wise )
  - Purchase order authorization required ( required/ not required )
  - send reminder for validation ( yes/ no )
  - purchase order validation levels
  - financial year range
  - asset detail generation no.( user define/ system define )
  - yes/ no option for send mail for float inquiry
  - calculate depreciation/ appreciation on diaposal and sale
  - depreciation and appreciation charged (auto/manual )
  - depreciation/appreciation charged period ( monthly/bi-monthly/quaterly/half yearly/annualy ).

1. **No. Generation Parameters**

   ( parameters can be defined for Auto/ manual or both number generation )

- Location code generation
- Cost sheet
- General issue
- Receive
- Rate contract
- Client master
- Disposal
- Maintenance contract
- Maintenance schedule
- Out isuue
- User code
- Vendor code generation
- Float inquiry
- Requisition issue
- GRN number generation
- Quotation
- Requisition
- Asset definition
- Bid receive
- Sale order
- Maintenance details
- Out receive
- Owner code

## B- Purchase, sales and others:

This part deals with various sub modules such as:

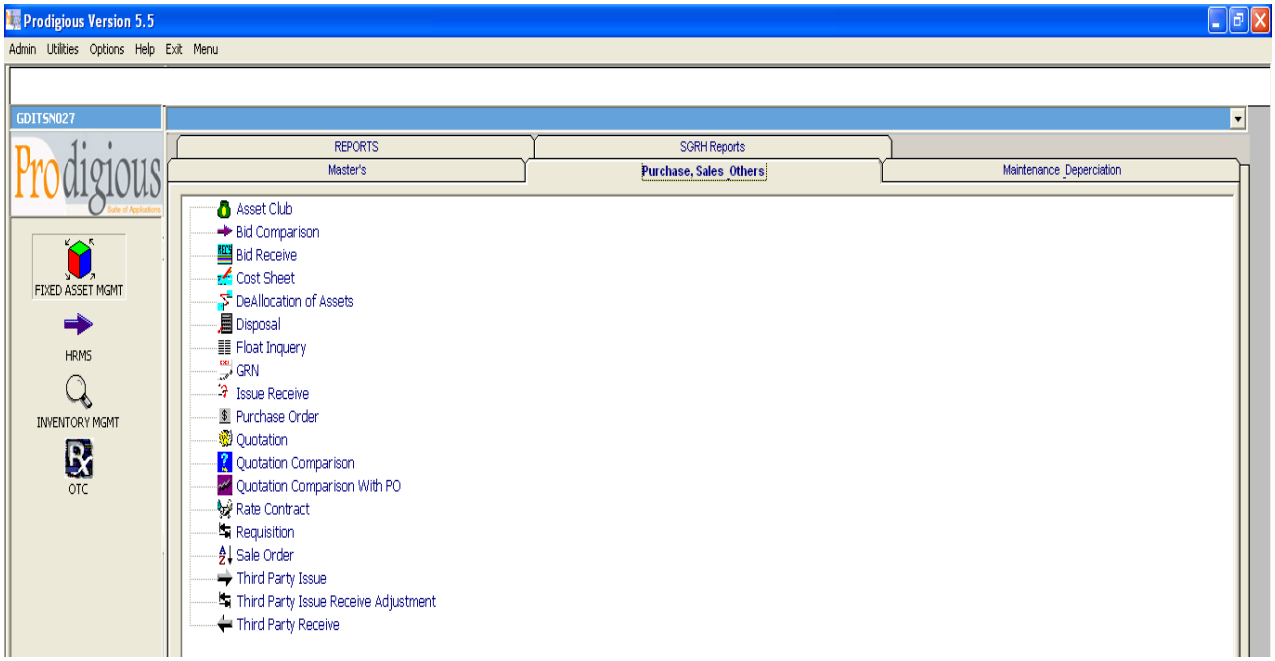



**Figure-14** *( List of functions of Purchase, Sales and Others Tab )*

### a. Quotation :

Here quotation received from the vendors can be entered against the float inquiry. While entering quotation system asks for mendatory field such as quotation number, vendor name and code and the assets details in terms of Asset description, its price, warranty, Free of cost quantity(FOC), remarks, final value and detail etc.

There are various other non-manadatory areas such as credit day, credit percent, credit amount, remarks about vendor, terms and conditions etc.

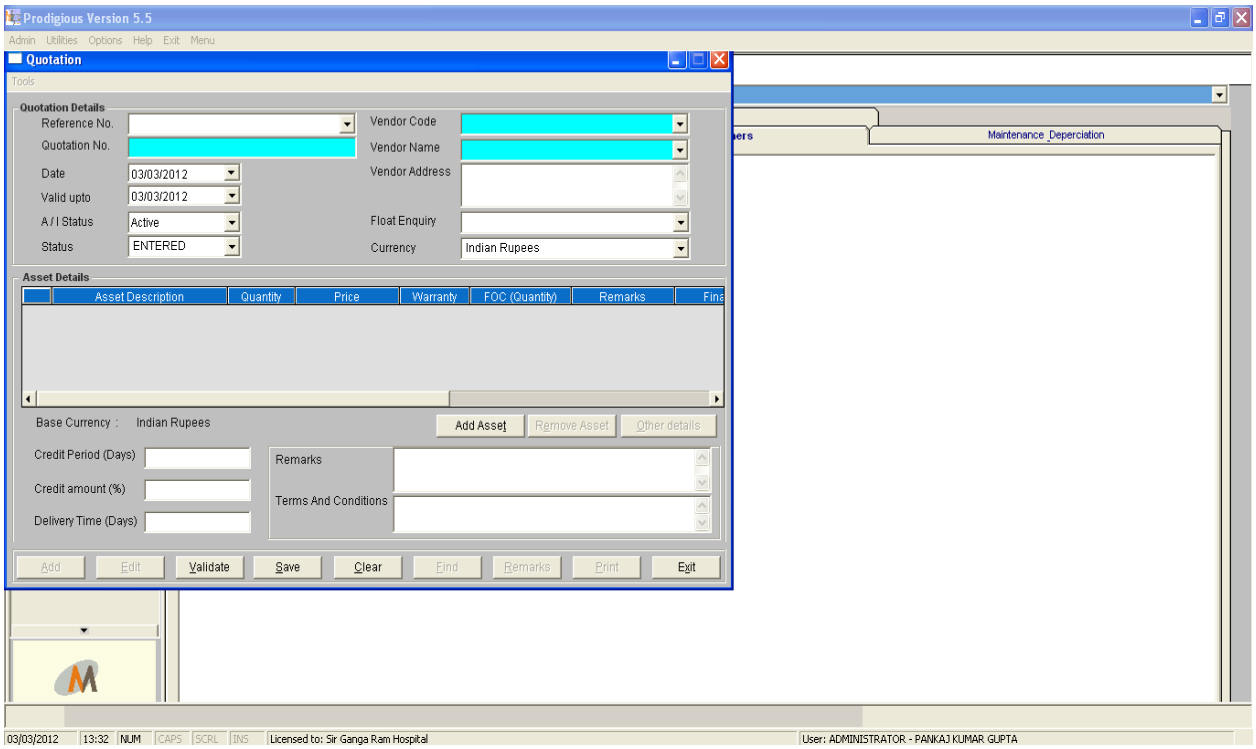



**Figure-15** *( Asset Quotation entering Template )*

## b. Quotation Comparison:

Here comparison between various quotations received from the vendor is done for a particular asset and system shows the best deal with blue color.

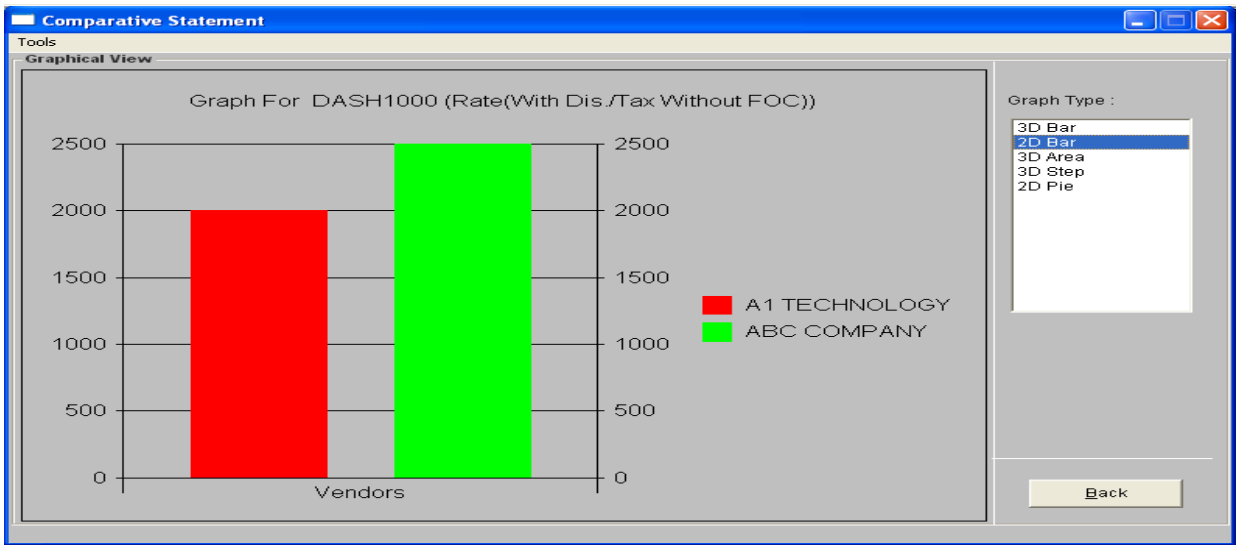



**Figure-16** *( Asset Quotation comparison display )*

### c. Rate contract:

Here rate contract is established with the vendor for assets. While entering a rate contract into the system, it asks for some mandatory fields such as vendor name and code and the currency type. Then validity of the contract is added, now the details of assets on which the cotract will apply is added such as asset description, code, quantity, value, remarks, total discount amount, total tax amount, final value etc.

User can also enter charges details and other details.

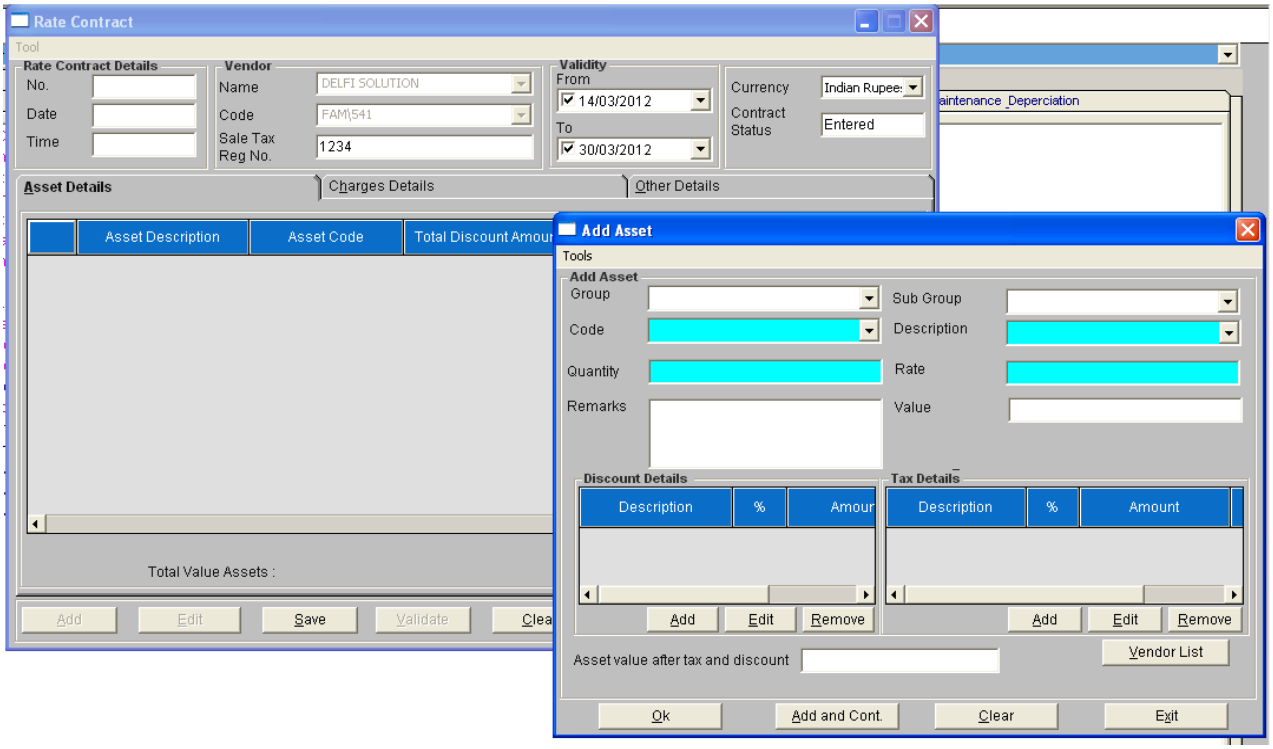



**Figure-17a** *( Asset Rate Contract entering Template )*

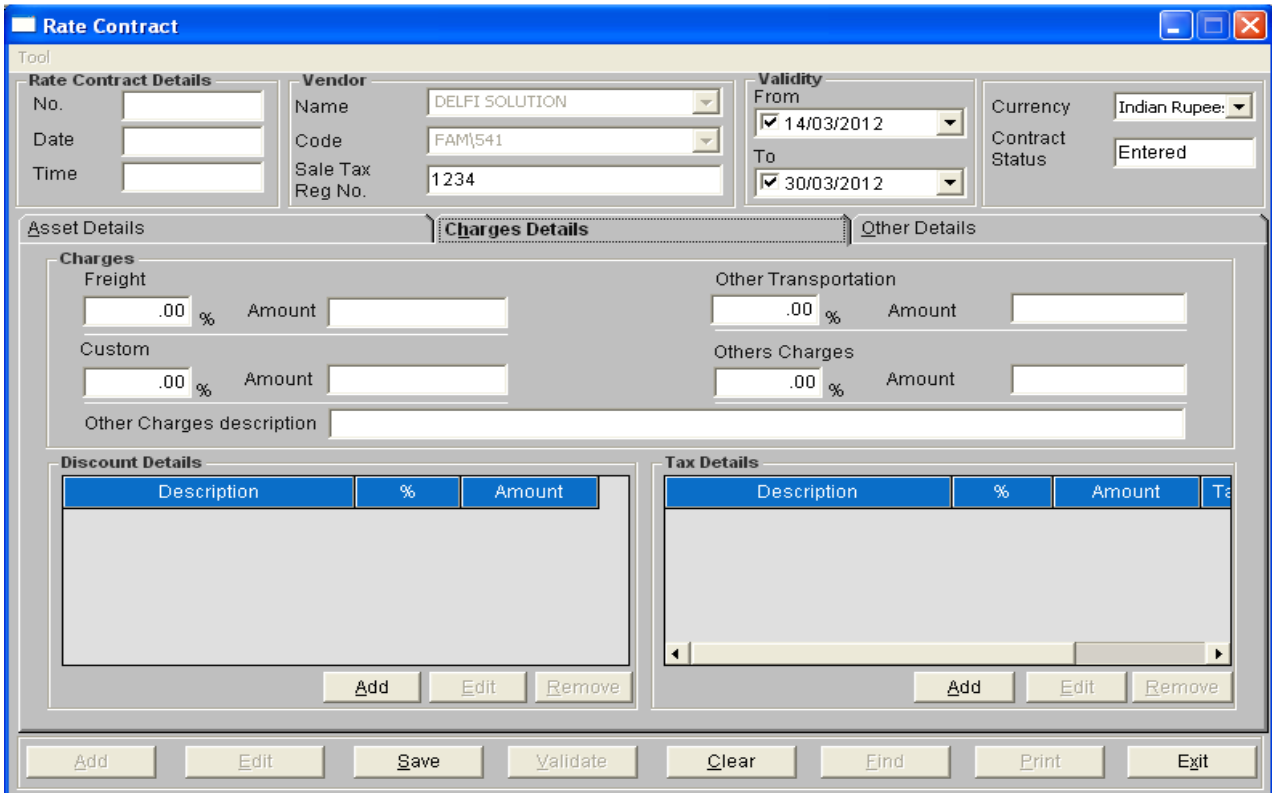



**Figure-17b** *( Asset Rate contract entering Template )*

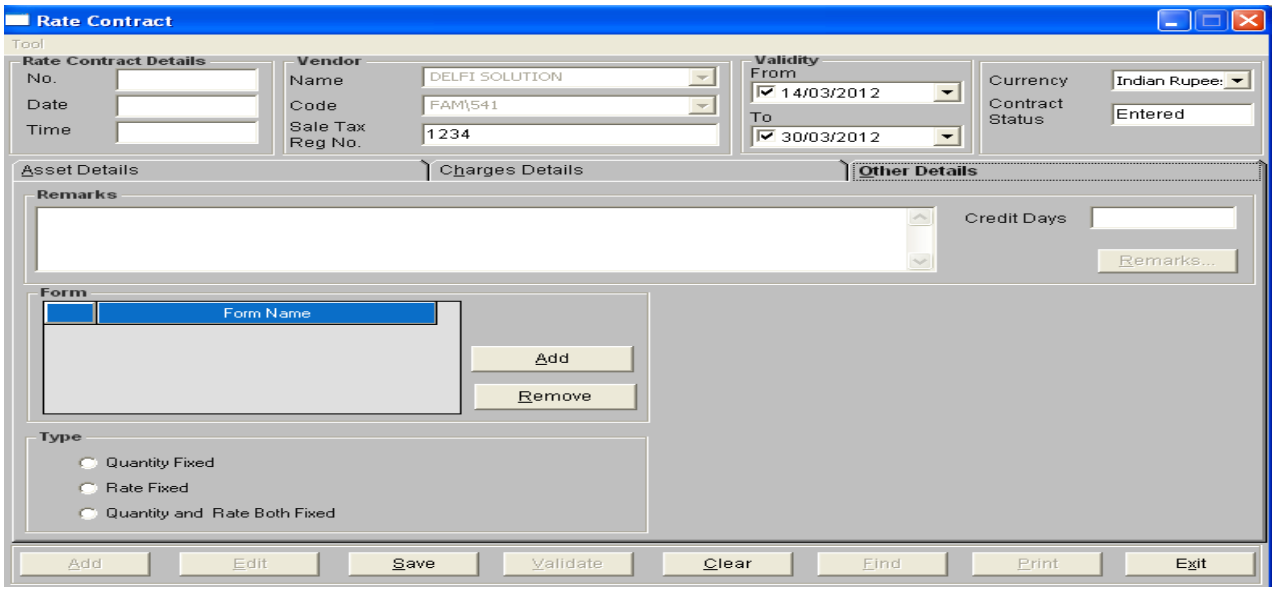



**Figure-17c** *( Asset Quotation entering Template )*

**d. Purchase Order :**

While entering purchase order; system asks for mandatory fields such as vendor name and code, currency, non-mandatory fields such as validity of purchase order. Then the asset for which purchase order should be made, is entered into the system in terms of asset description, code, quantity, multiple due dates, remarks, store, total discount amount, total tax amount, final,value, rate of interest, amount of interest, no. of mandatory installment, amount of each installment, other charges, total amount to be paid, vendor installment, vendor down payment.

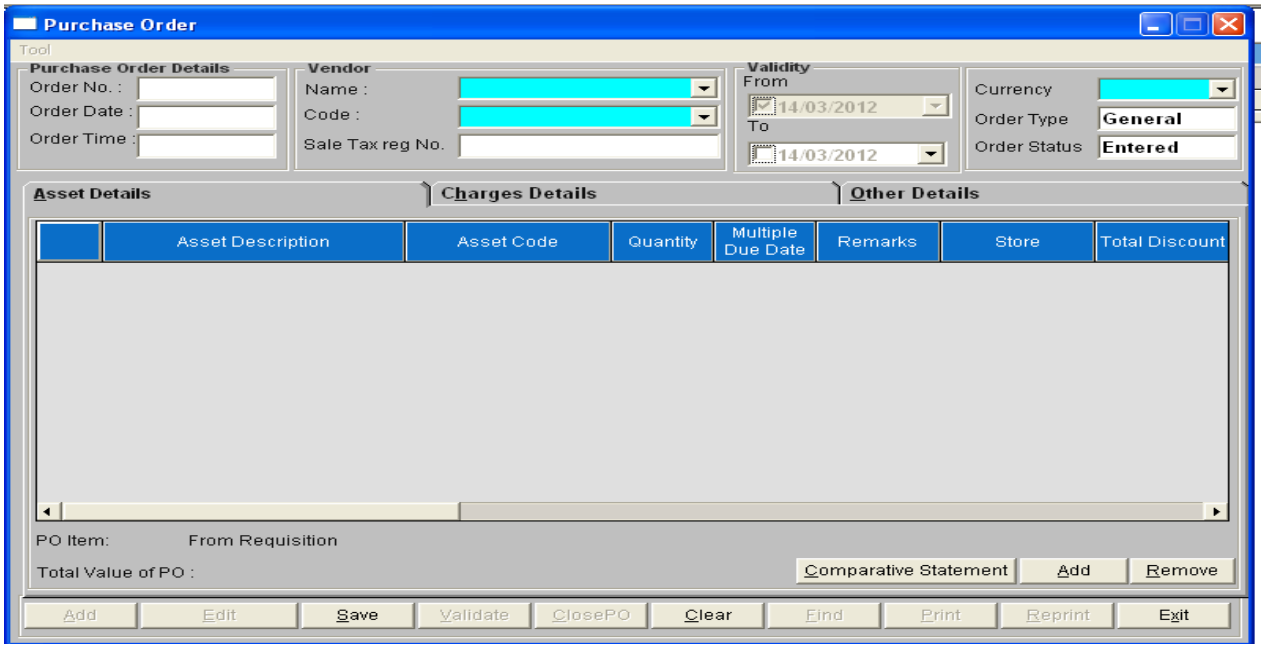



**Figure-18** *( Asset Purchase Order entering Template )*

**e. GRN( Good Receive Note ):**

When the good is received by organization, the good receive note is made into the system, while generating GRN, system asks for manadatory fields such as delevery note number, date, vendor name, code, purchase order number, currency, location for which it is bought.

Then the asset details are entered such as noumber of quantity requested,received quantity, rejected quantity, cost, other charges, serial numbers of each asset etc.

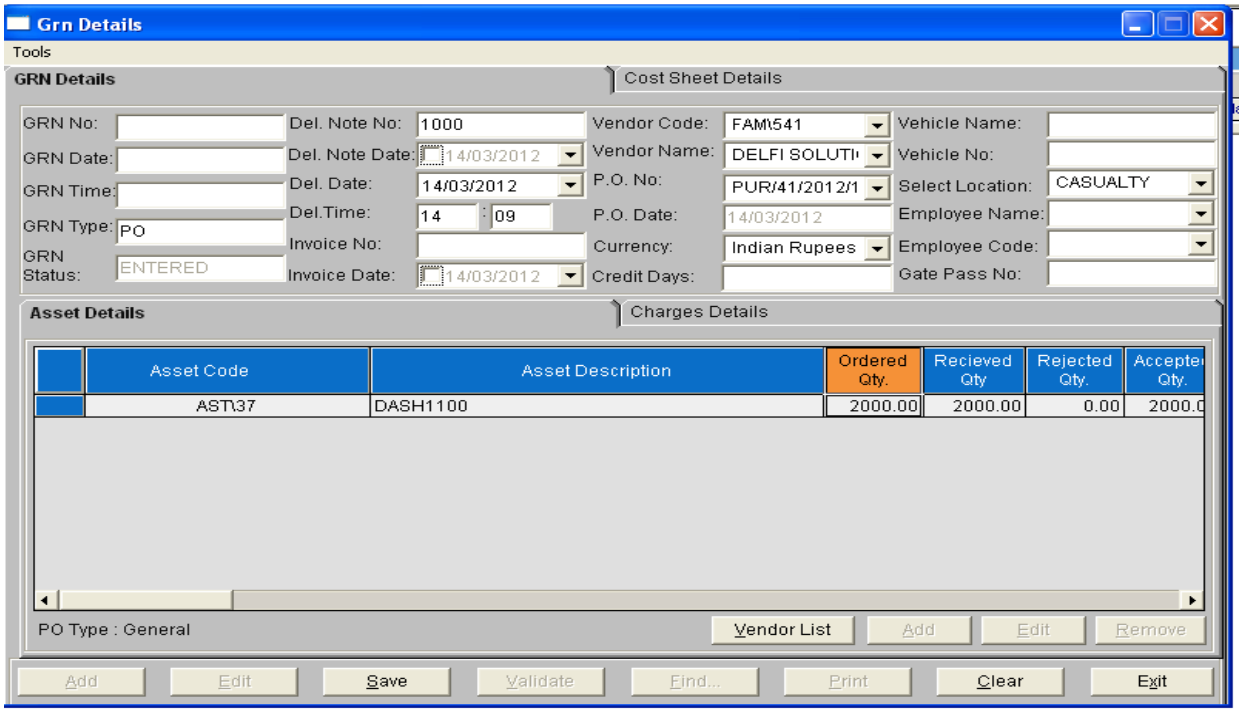



**Figure-19** *( Asset GRN Generating Template )*

## f. Requisition:

Here requisition from one department to other department or purchase department is sent for the assets. While entering requisition, system asks for the department to which the requisition is being sent, it could be purchase department or other department. Now the asset details are entered such as asset description, required quantity, required by date etc. Then the requisition is saved and validated by the location incharge. The facility of multiple due dated is used in case partial delivery at a time.

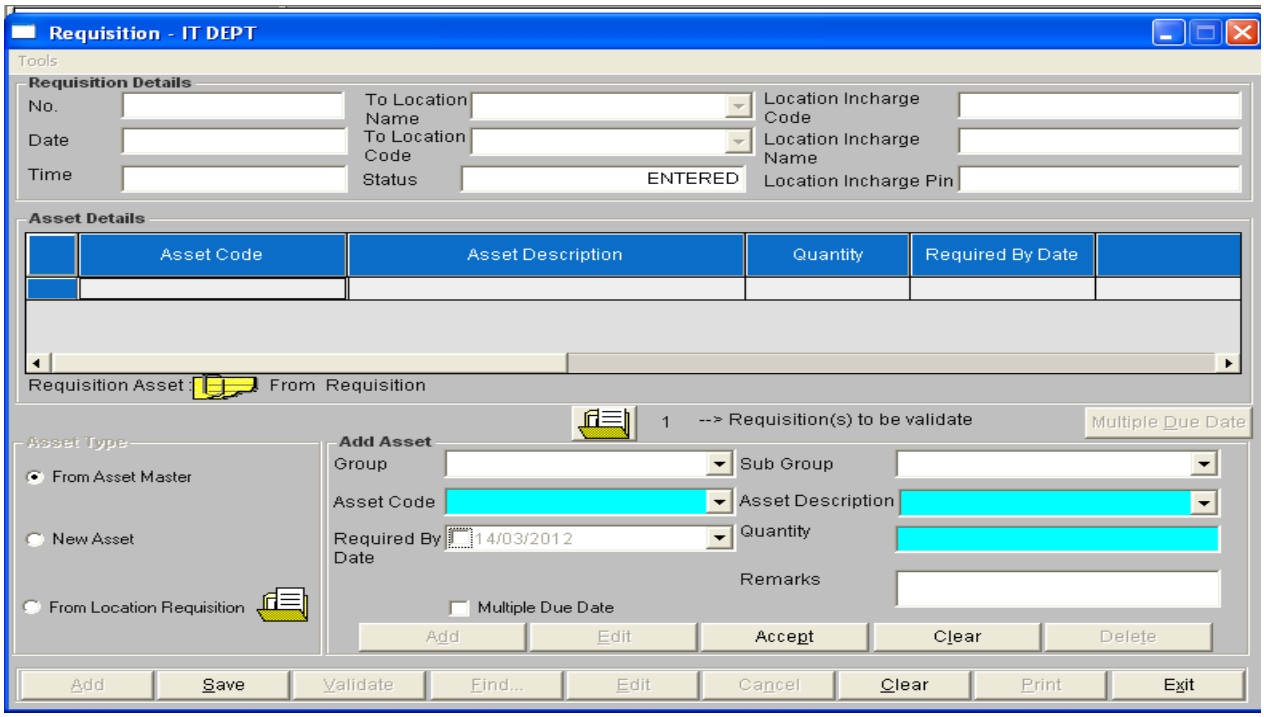



**Figure-20** *( Asset Requisition entering Template )*

## g. Sale order:

The assets which are for sale, their sale order is made here. While entering a sale order, system asks for some mandatory field such as client name, code, curency.

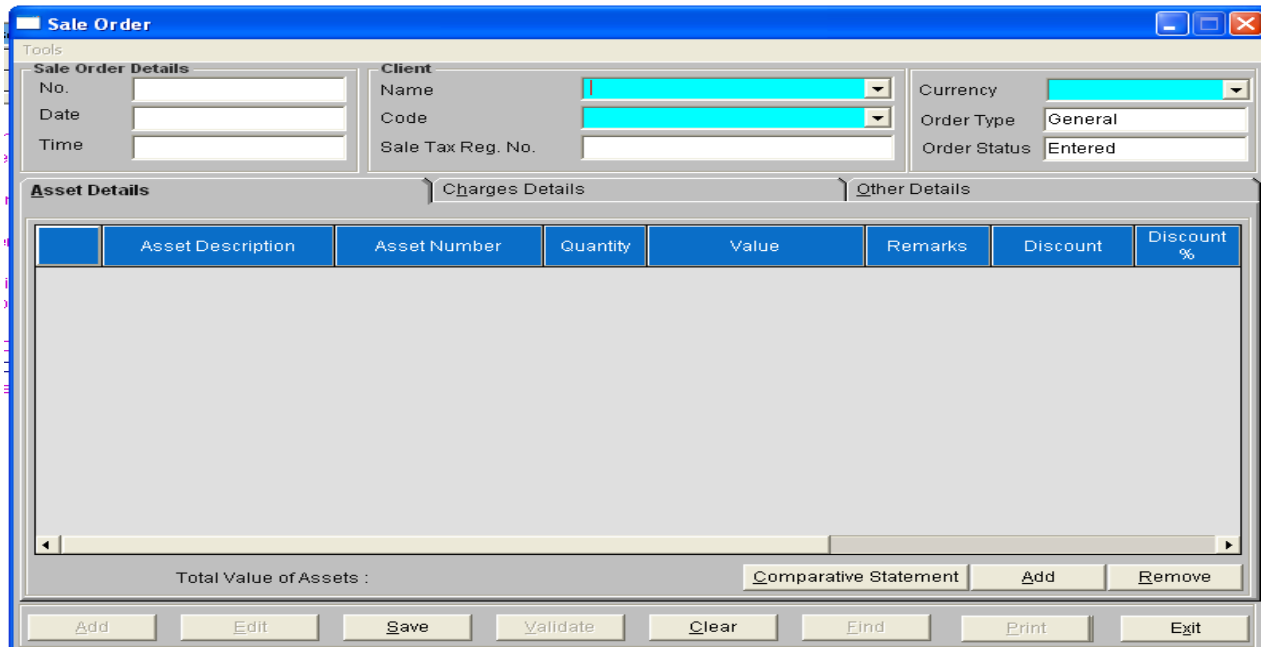



**Figure-21a** *( Asset Sale Order Generating Template )*

Then the asset detail is entered interms of asset description, asset number, quantity, value, remarks, dicount, discount percentage, tax amount, tax percentage, tax charged on, final value.

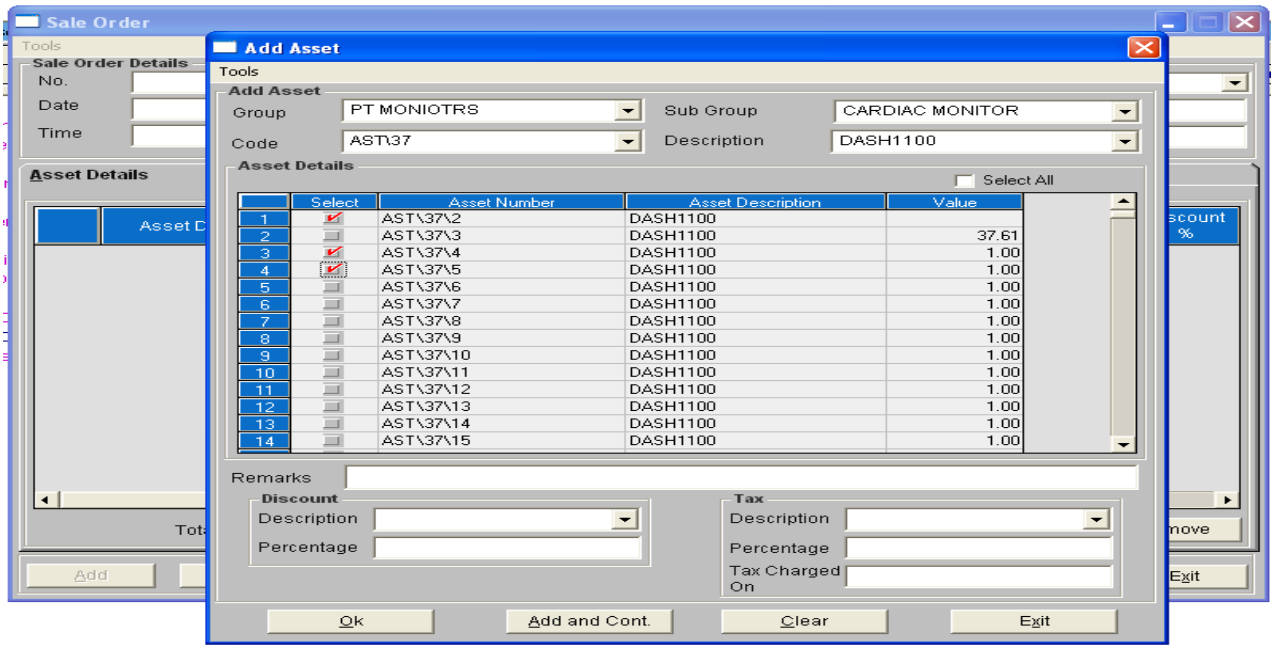



**Figure-21b** *( Asset Sale Order Generating Template )*

**h. Third party issue:**

Here one department issues the asset to the other( department/client/employee ).

While entering third party issue, system asks for mandatory field of to whom the asset is being issued, it could be other department, client or an employee.

Then the asset detail is entered in terms of asset name, asset number, expected return and remarks.

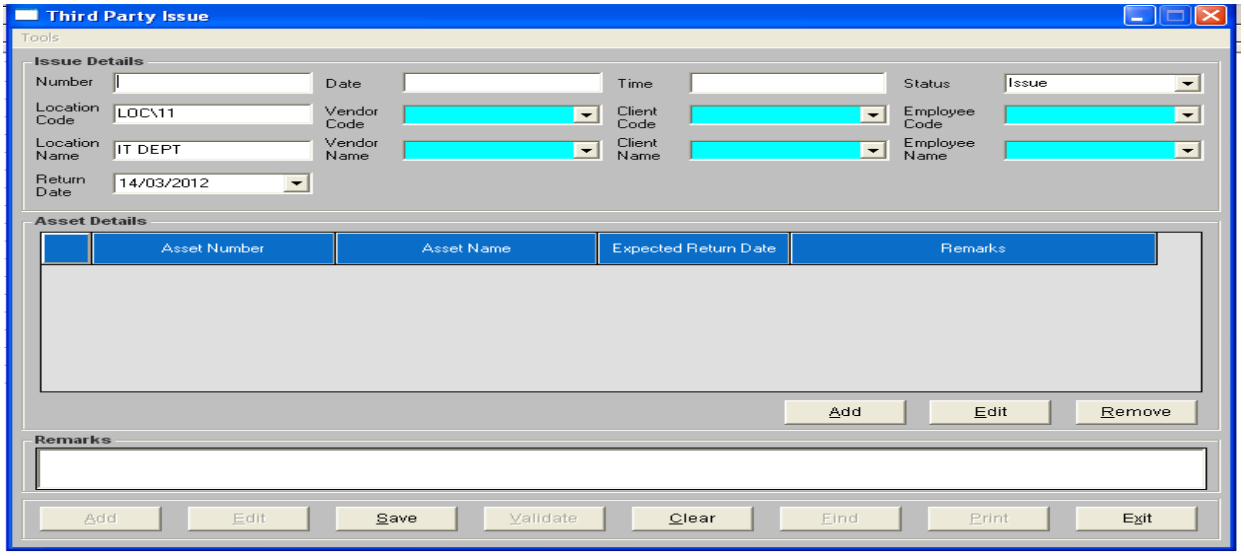



**Figure-22** *( Third Party Asset Issue Template )*

### i. Third Party Receive:

Here the details of the assets which are received from third party are entered in terms of which vendor/client or employee returned it. Then issue number is selected**.** Then the asset details automatically appears on the screen, if the user want to edit the details, here details can be edited and other charges can be entered and then the record is saved and validated.

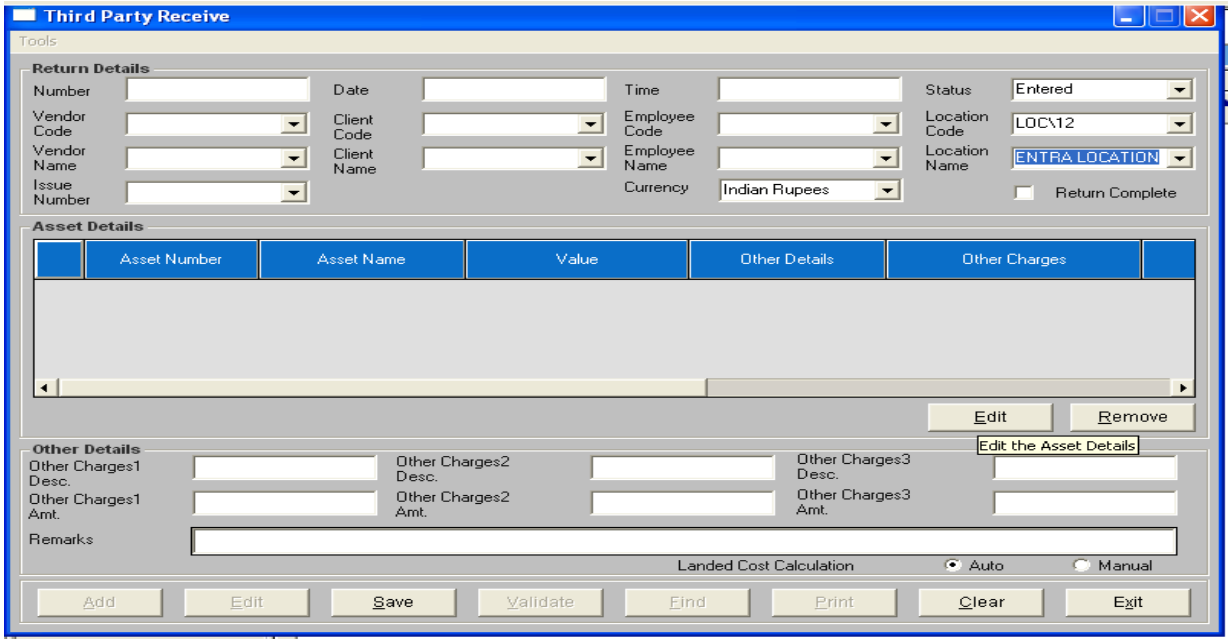



**Figure-23** *( Third Party Asset Receiving Template )*

### j. Issue / Receive:

Here the assets are issued as general issue or requisition issue. In general the system asks for the location to which the asset is issued then the details of asset is entered in therms of the asset description, code, required quantity, issued quantity, balance quantity. Then the authorized person enters his/her pin and save the record and validate it.

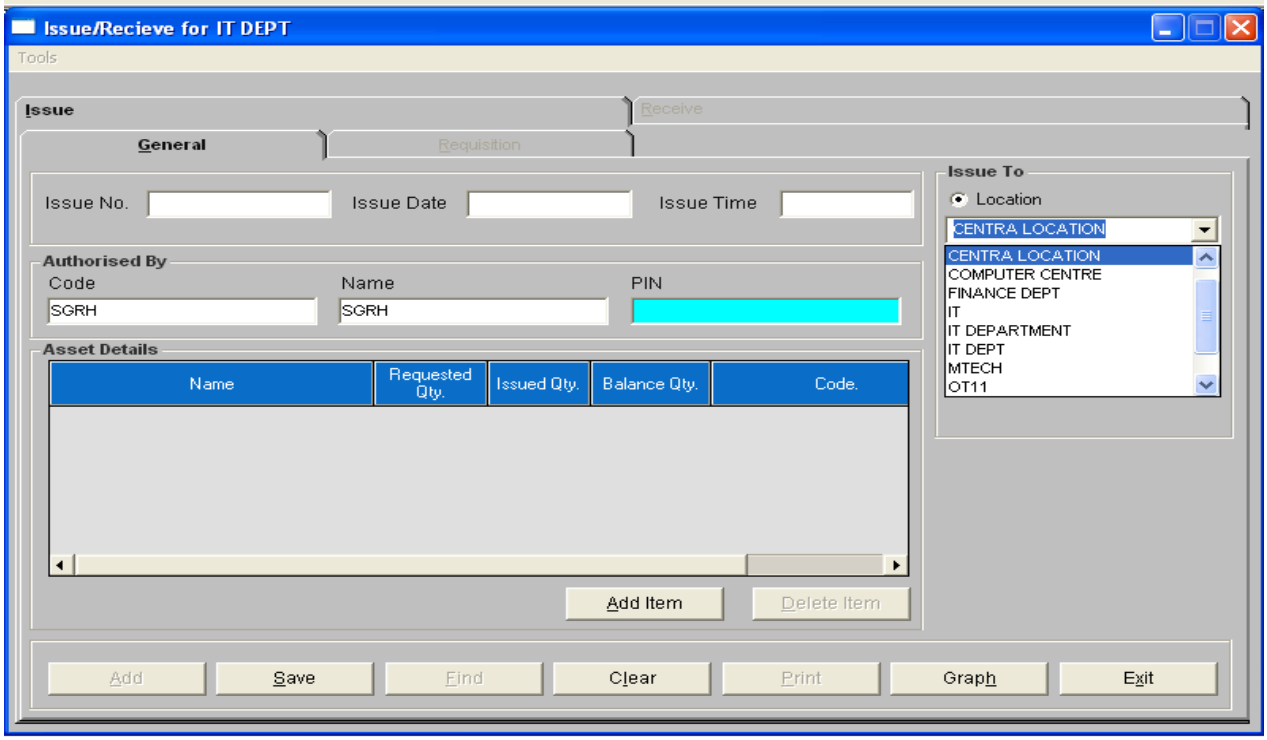



**Figure-24** *( Asset Issue and Receiving Template )*

### k. Bid Receive:

Here bid about an asset on sale, is entered into the system. While entering bid, system asks for mandatory field such as bid number, client name and code and currency. Then the asset details which is on sale, is entered interms of its group, subgroup, name of asset, its code, its rate,quantity and value. Other details such as frieght, custom, packaging and forwarding charges, terms and conditions and remarks are entered.

And finally the enterd data is saved and validated.

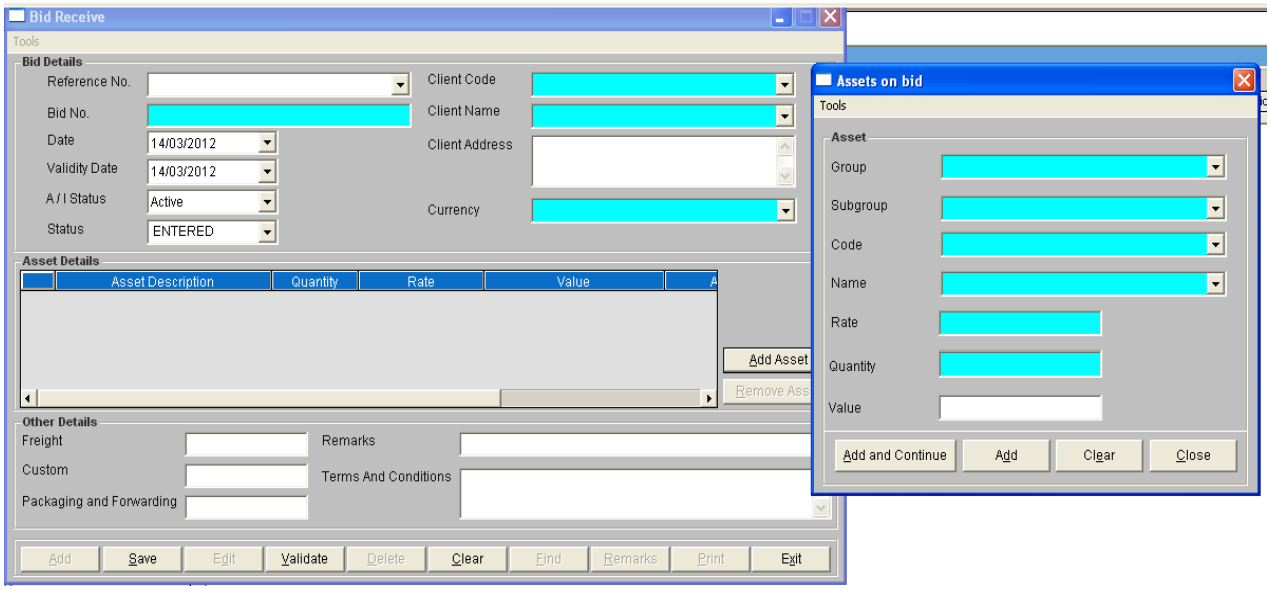



**Figure-25** *( Received Bid entering Template )*

## l. Bid comparison:

Here comparison between various bids received from the vendor is done for a particular asset and system shows the best deal with blue color.

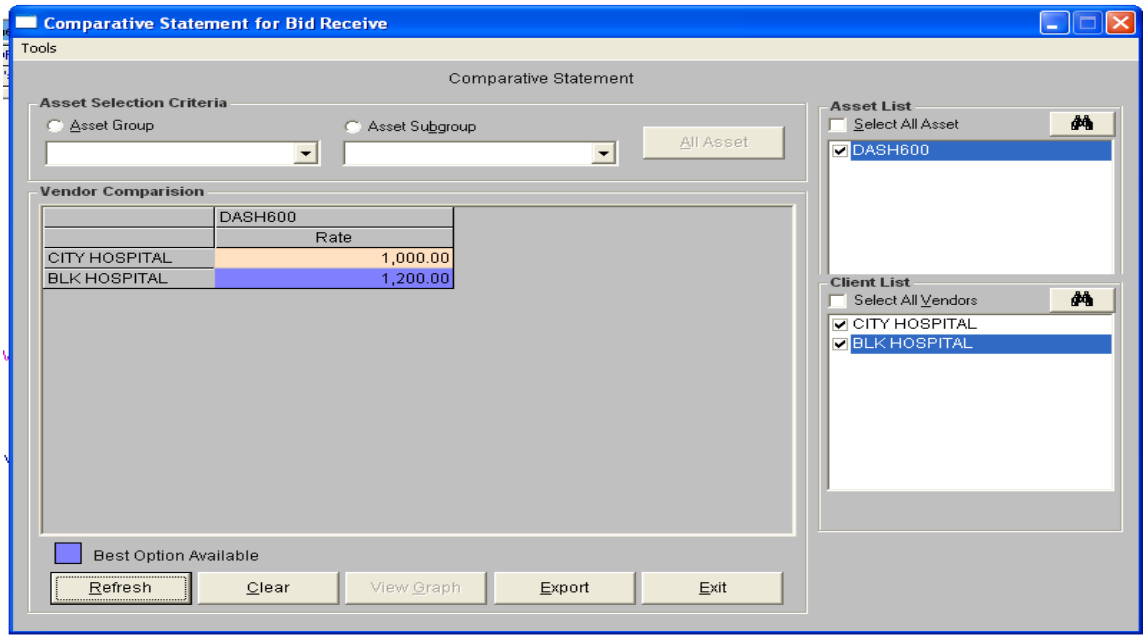



**Figure-26a** *( Bid Comparison Display Template )*

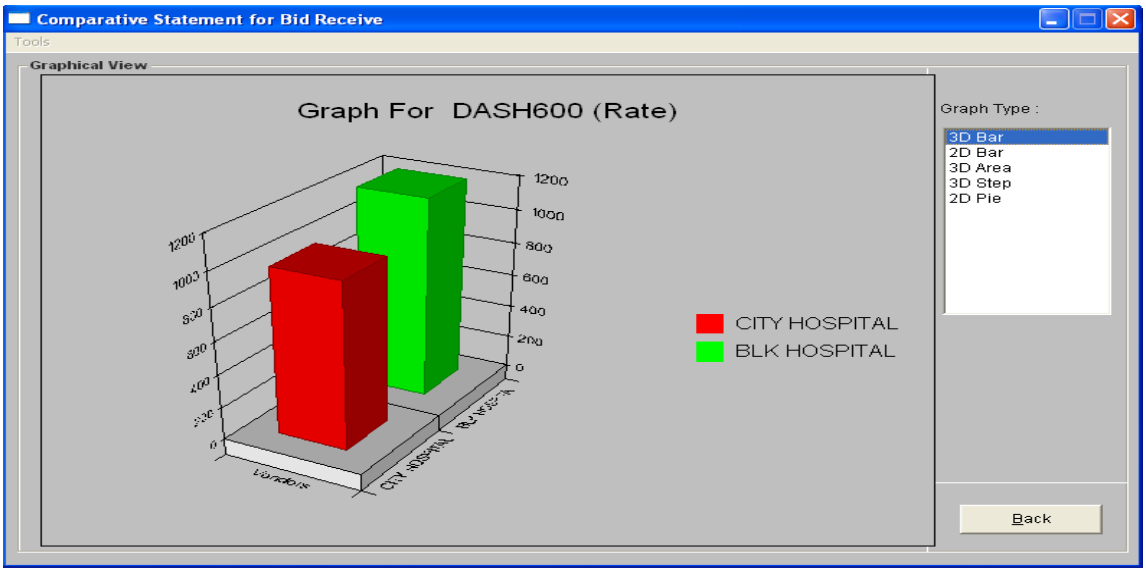



**Figure-26b** *(Bid Comparison Display Template )*

**m. Disposal:**

Here the asset which is no more functioning or hospital management decided to sale or destroy, is disposed. While disposing an asset system asks for reason for disposal, remarks and the asset which is to be disposed. And finally the user saves the data and validates it and asset gets deleted from the system.

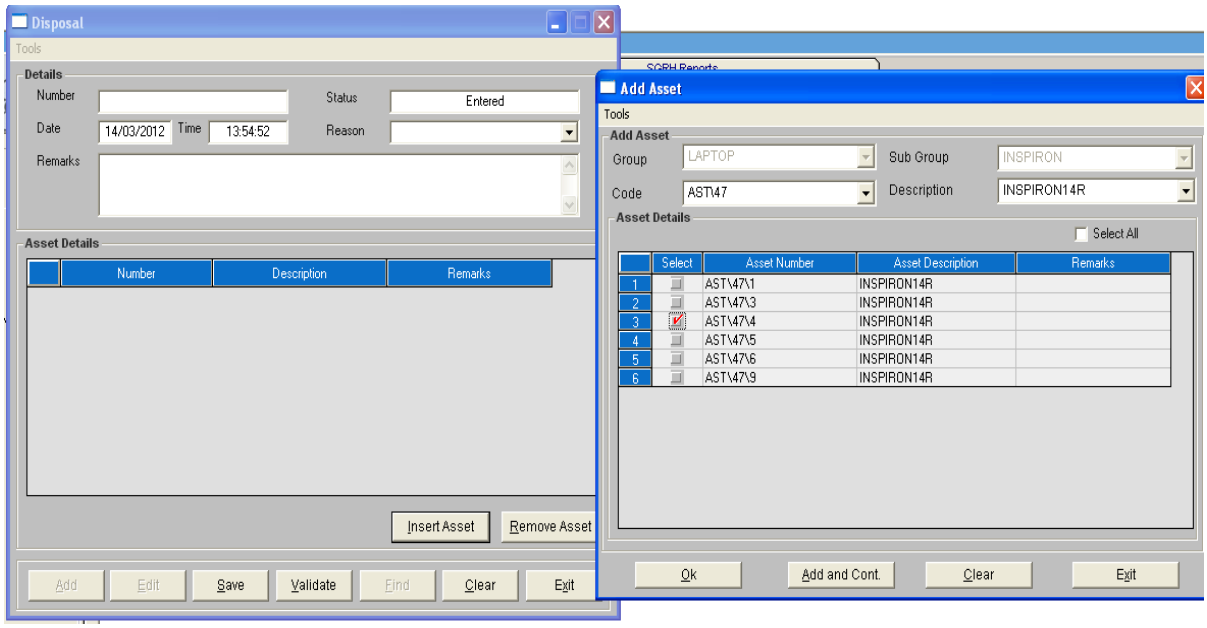



**Figure-27** *( Asset Disposal Template )*

## n. Asset Club:

Here the Assets which have components and each component for the system identification, is entered into the system and clubbed. While clubbing component assets system asks for mandatory fields such as asset group,subgroup,name and code and location and then the component assets are entered and data is saved and finally validated.

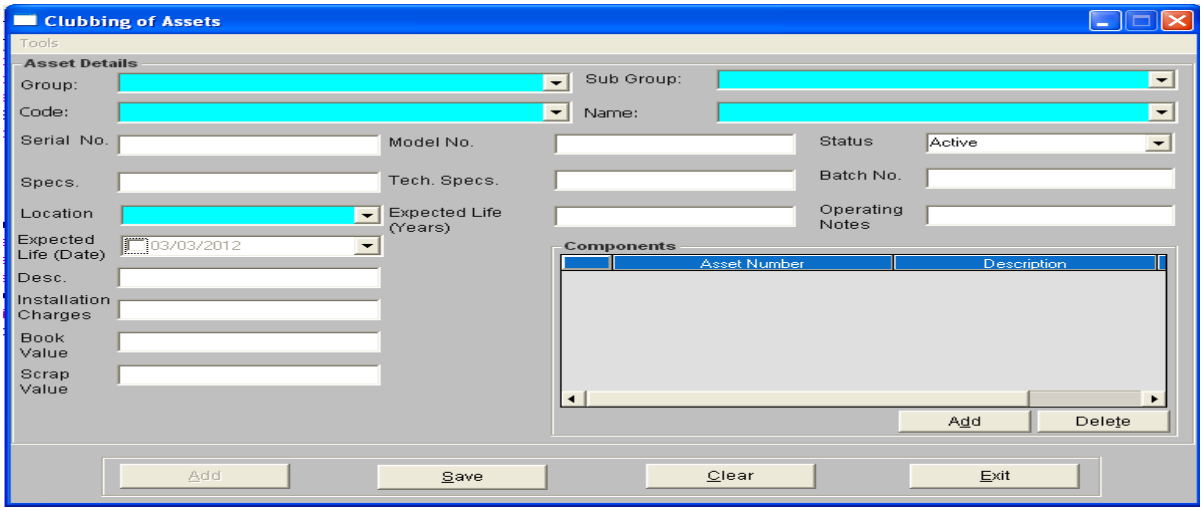



**Figure-28a** *( Clubbing of Assets Template )*

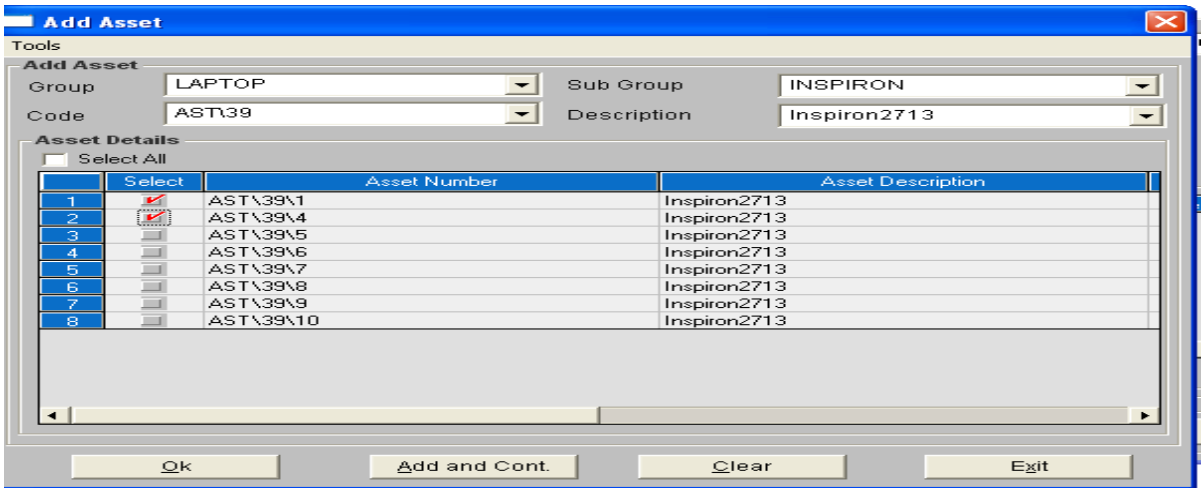



**Figure-28b** *( Clubbing of Asset Template )*

### o. Asset Deallocation:

Here the assets which were clubbed together, are unclubbed.

While unclubbing system asks for the clubbed assets which has to be unclubbed into its component.

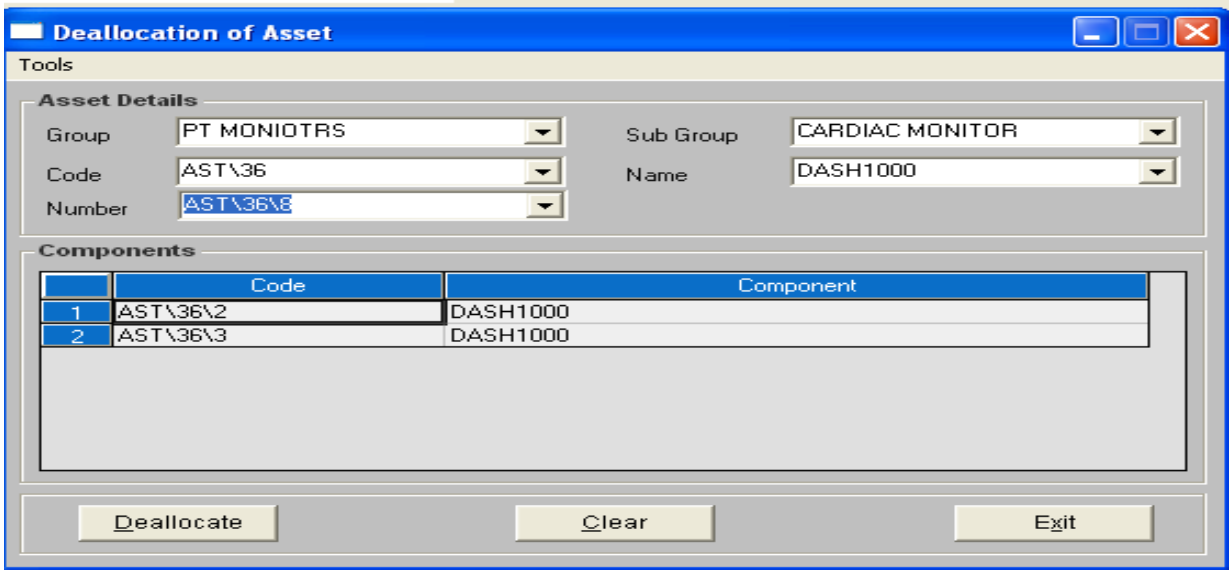



**Figure-29** *( Asset Deallocation Template )*

### p. Quotation comparison with PO:

Here comparison between various quotations received from the vendor is done for a particular asset and system shows the best deal with blue color. This functionality is same as quotation comparison but here user can directly access purchase order(PO) if it is already made.

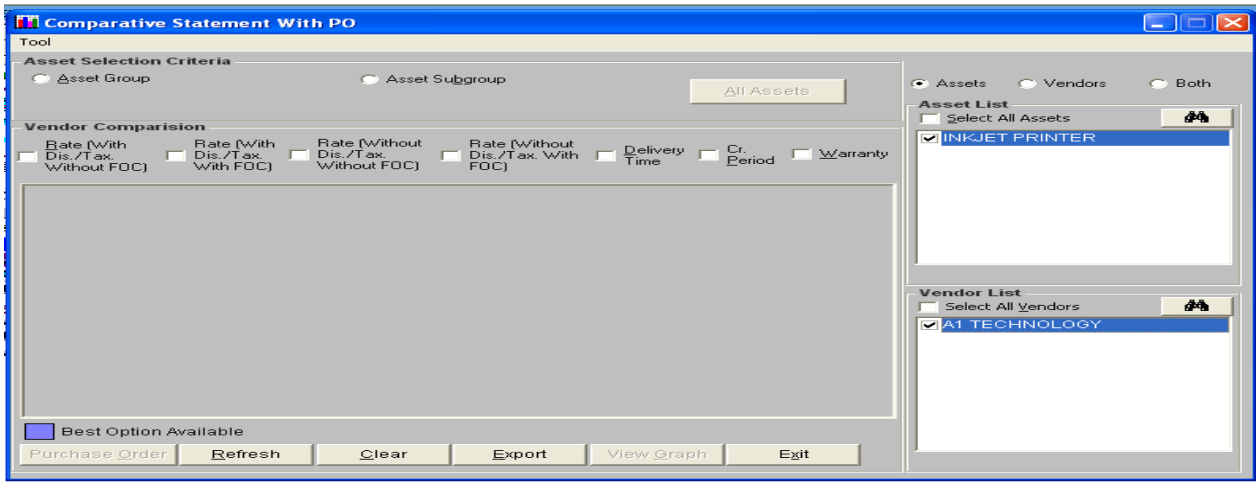



**Figure-30** *(Quotation Comparison with PO Display Template)*

**q. Cost sheet:**

In this user can enter the cost price, fright, custom and tax on the asset etc.

**C- Maintenance and Depreciation:** This Tab consist of following functionalities:

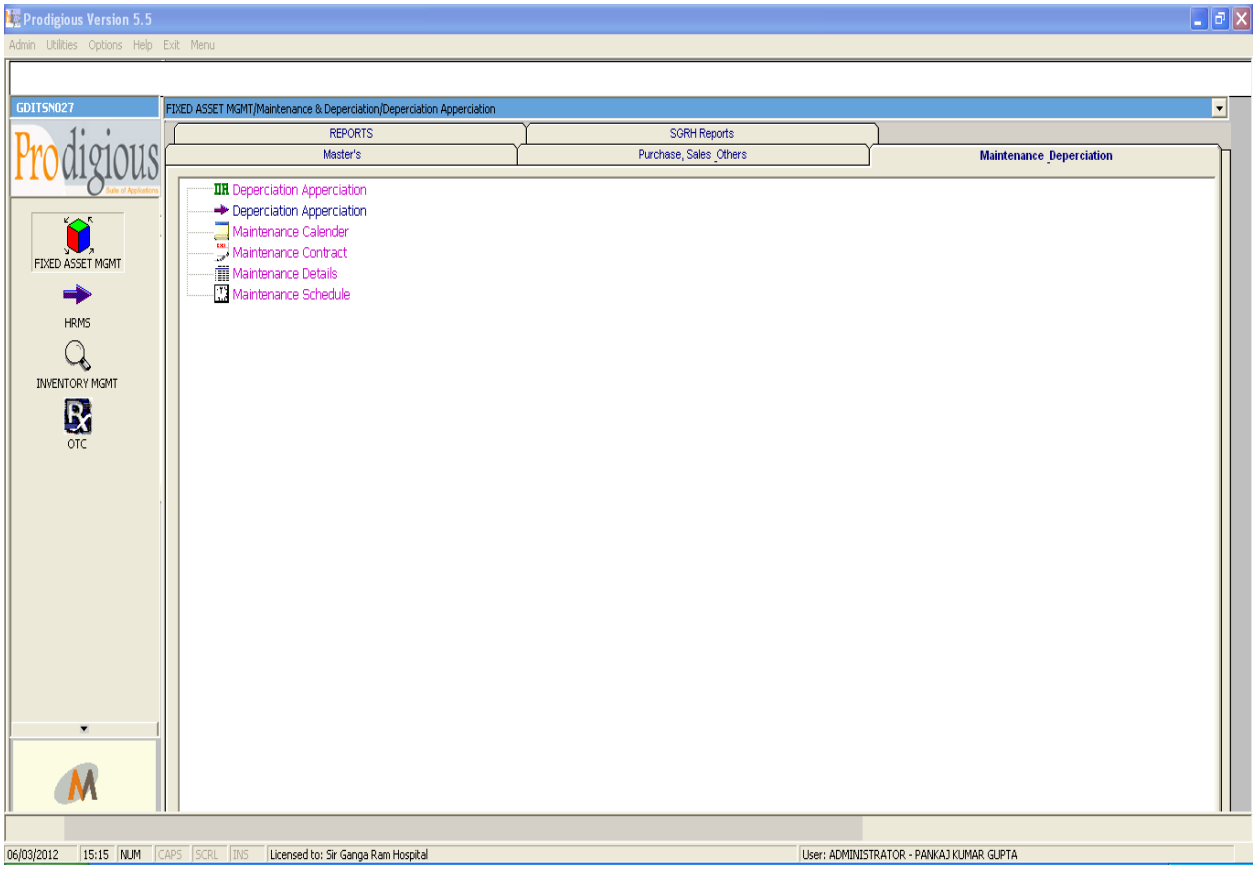



**Figure-31** *(Functionalities of Maintenance and Depreciation Template )*

**a. Depreciation/appreciation:**

Here the user can freeze the depreciation method for individual asset or for whole group of asset or make any changes before freezing this for a particular period of time.

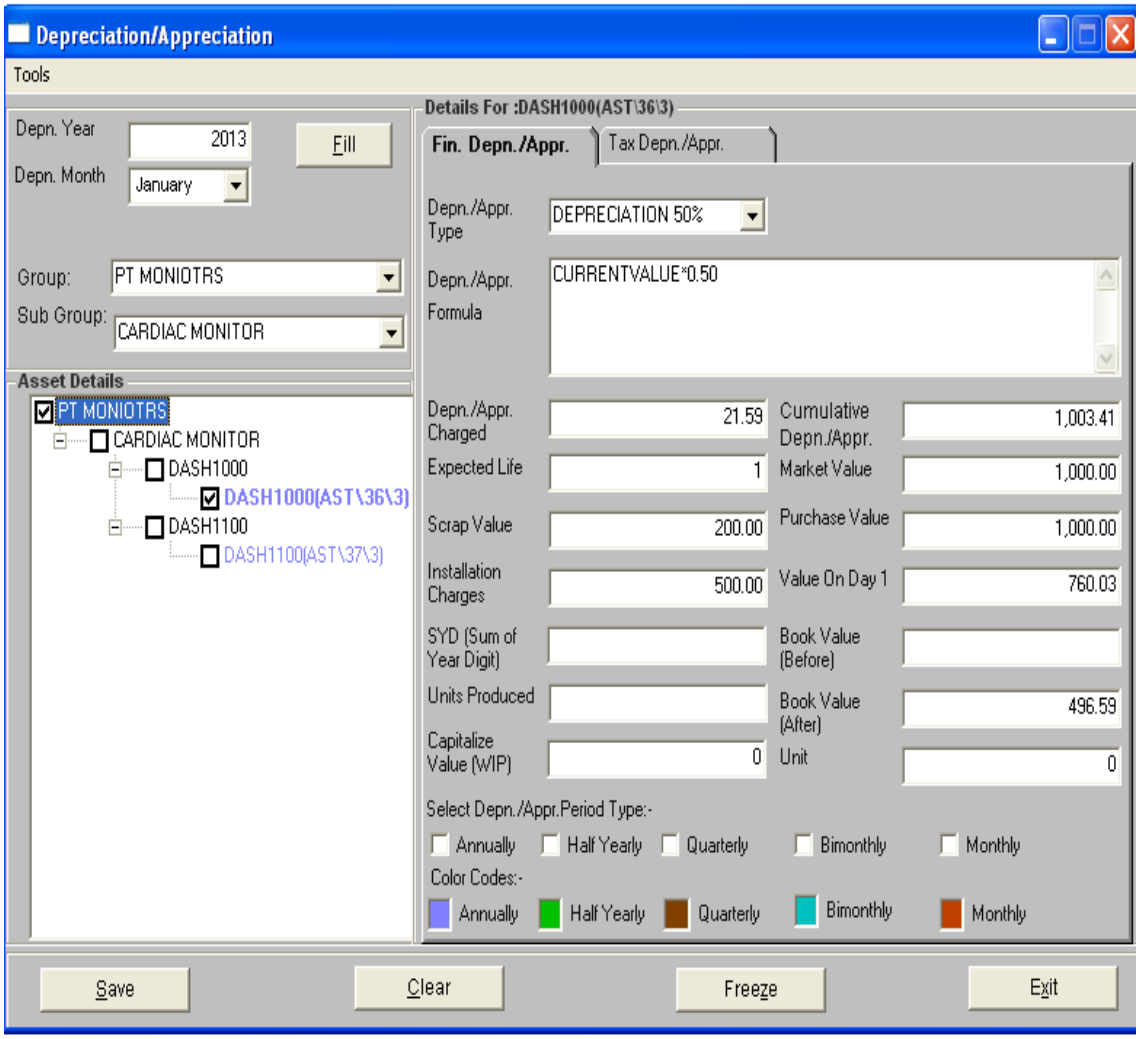



**Figure-32** *( Depreciation Appreciation Template )*

**b. Maintenance contract:**

Here the contract details with the vendor are entered in terms of what kind of contract such as casual,preventive etc for which asset, for how long and number of services and cost of services , tax on service charge and discount etc.

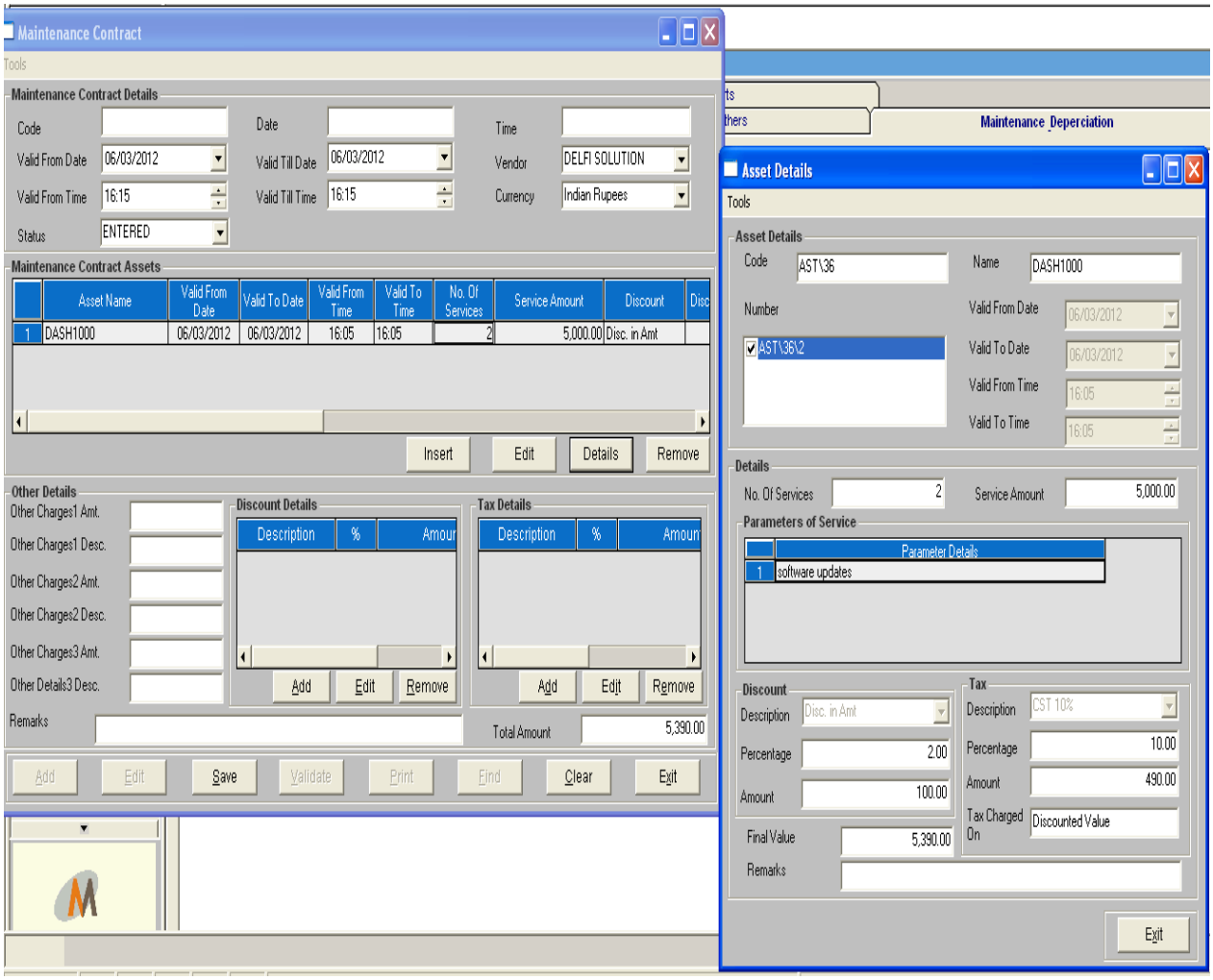



**Figure-33** *( Asset Maintenance Contract entering Template )*

### c. Maintenance schedule

Here Maintenance schedule is made for the asset maintenance with the vendors in contract. While entering schedule system asks for type of contract, asset name,code,group and subgroup, vendor and contract number then the asset maintenance date and the parameters for asset maintenace and remarks are entered and then the data is save and validated.

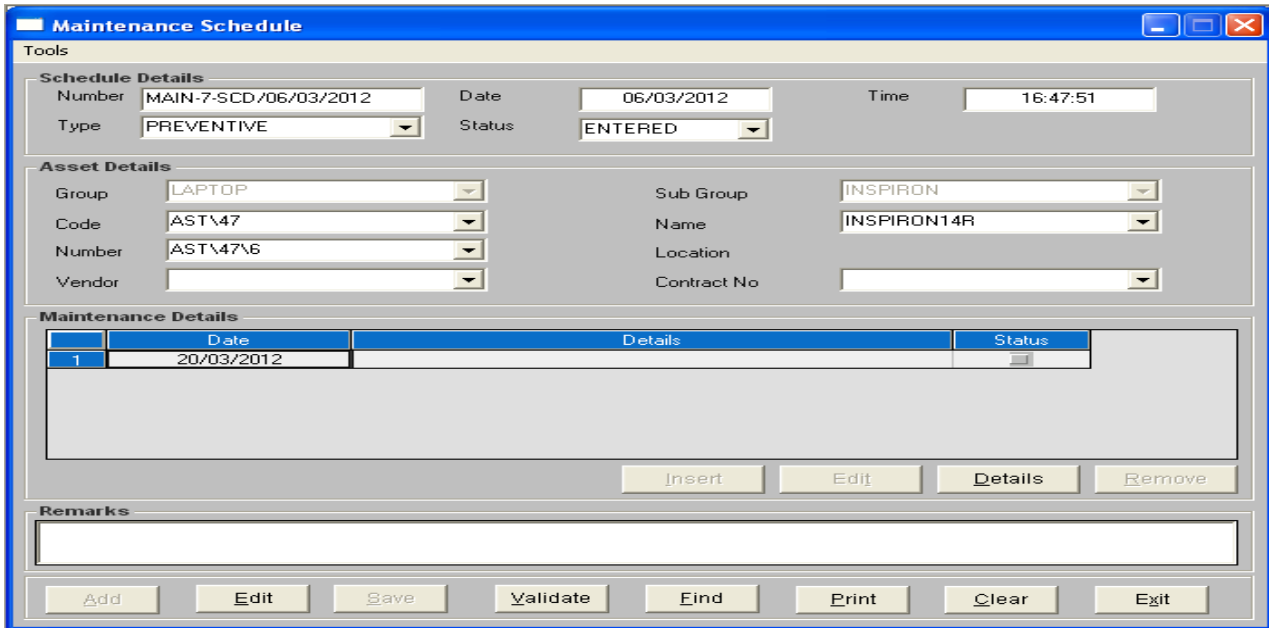



**Figure-34** *( Asset Maintenance Schedule entering Template )*

## d. Maintenance calendar

Here user can see the calendar for maintenane and the type of maintenance for the fixed assets.Different color coding shows the status of maintenance service. Example : orange color shows done, gray color shows not done, green color shows skipped and white color shows not scheduled status of the maintenance.

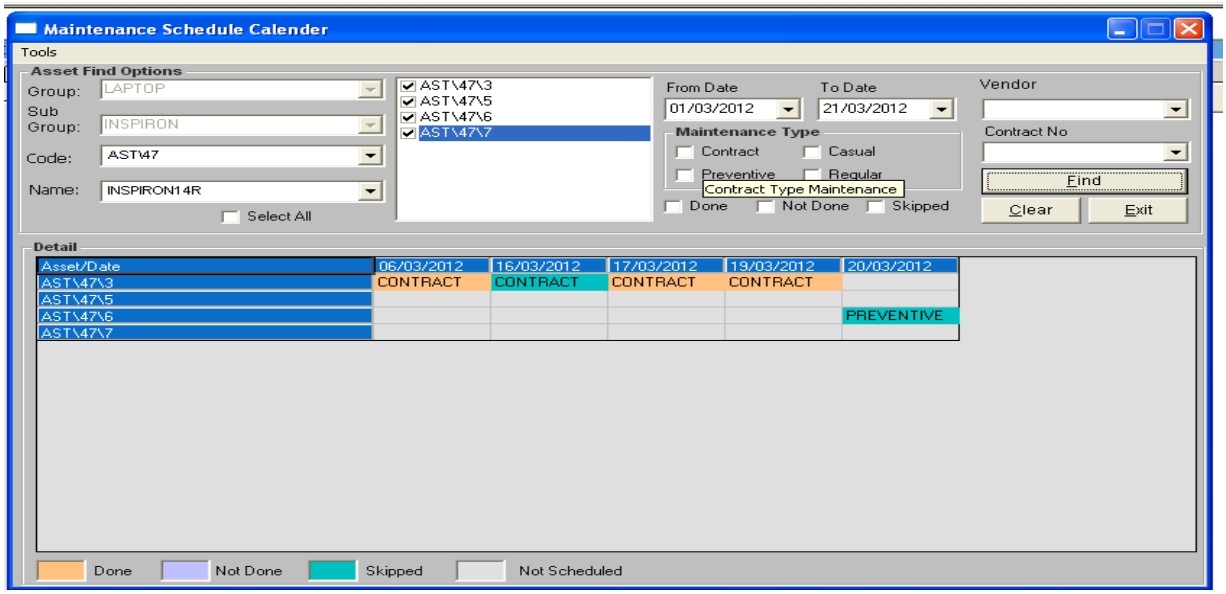



**Figure-35** *( Asset Maintenance Calendar Display Template )*

### e. Maintenance detail

Here user enters the maintenance details when it is done which automatically gets updated into maintenance calendar.

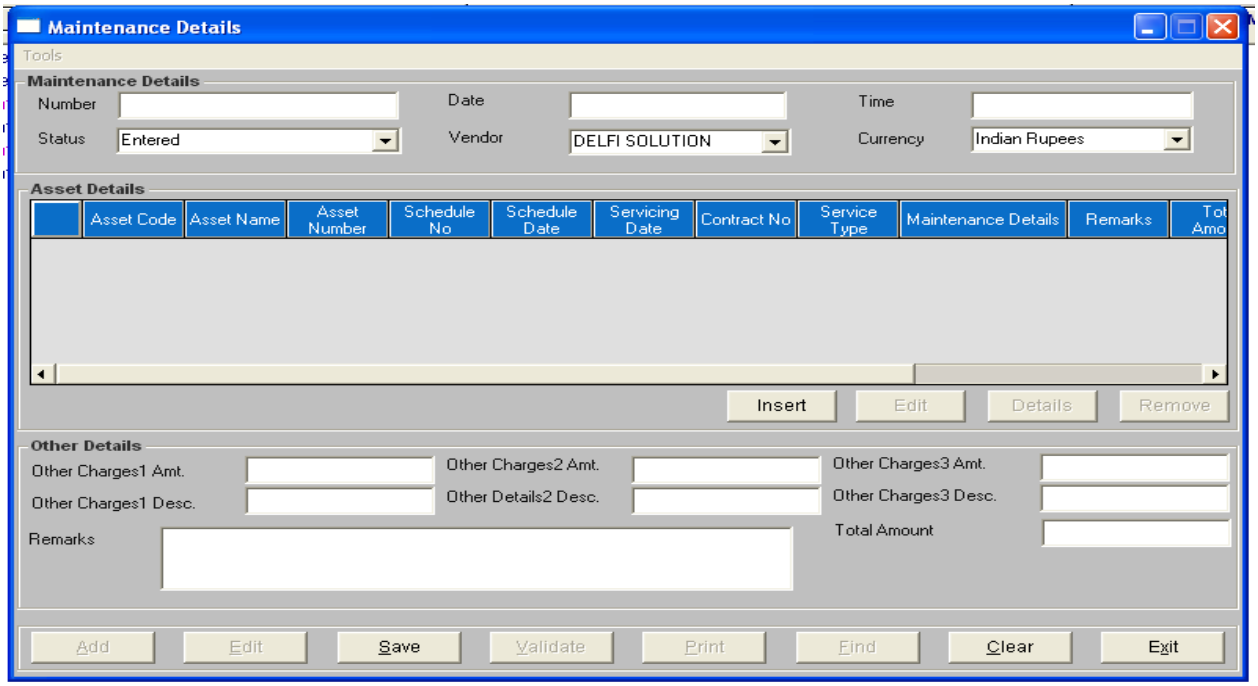



**Figure-36** *(Maintenance Detail entering Template )*

### D- Reports:

Here various reports can be generated for management decision such as :

### 1.Appreciation/depreciation report:

In this report of the depreciation/ appreciation of the assets for a specified time which is defined at the time of asset Asset detail/GRN generation in the software, is generated.

Example:

If on a computer system the depreciation is defined 10% then in the report the data which will be shown would be as follows

| Asset subgroup | Asset | Asset number | Book Value(Rs) | Depreciation Method | Depreciation till 31st March | Depreciation till 30th june | Depreciation till 30st september | Depreciation till 31 December |
|---|---|---|---|---|---|---|---|---|
| computers | HP 400 | HP 400/1 | 2000 | 20% Dep | 1950.415509 | 1902.060329 | 1854.903983 | 1800 |

**Table**-1 *(Appreciation/Depreciation)*

## 2. Fixed asset valuation report:

In this report value of each asset, group or sub group is shown.

Example:

| **asset group** | **asset subgroup** | **asset item** | Asset Number | **date** | **net value** | **total value (group)** |
|---|---|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP/001 | 31-Jan | 1983.333333 | 2966.666667 |
| | | | | 31 Feb | 1966.805556 | 2941.944444 |
| | ancillaries | laserjet | Laserjet/90 | 31-Jan | 983.3333333 | |
| | | | | 31 Feb | 975.1388889 | |

**Table**- 2 *(Fixed Asset valuation report)*

## 3. Asset movement reports:

In this report user may see the all asset movements to the various departments.

| **Asset group** | **Asset subgroup** | **Asset item** | **Asset number** | **Location** | **Date** |
|---|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department | 31-Jan |
| | | | | IT department | 5-Feb |
| | | | | Finance department | 10-Mar |
| | | | | Accounts | 18-Sep |

**Table**-3 *(Asset movement report)*

## 4. Asset location:

In this report we can see the asset current location of assets either asset wise or department wise.

Example:

| **Asset group** | **Asset subgroup** | **Asset** | **Asset number** | **Location** |
|---|---|---|---|---|
| computer and ancillaries | Computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | Ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | Laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-4 *(Asset location report)*

**5. Furniture allocation register:**

There are various items which comes under furniture which are less critical to patient care (excluding patient bed,trolley, bed etc.) such as office table, setty, chair, stool, cupboard etc. In this report the current location of furniture items can be seen. It is more or less same as asset location report.

Example:

| **Asset group** | **Asset subgroup** | **Asset item** | **Asset number** | **Location** |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-5 *(Furniture allocation register)*

**6. GRN:**

Here GRN numbers generated can be seen for various conditions such as date range wise, department wise, item wise and vendor wise.

Example:

| **Asset group** | **Asset subgroup** | **Asset item** | **Asset number** | **Location** |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-6 *(GRN report)*

**7. Issue list:**

Here issue list can be generated either department wise or date wise or asset wise.

Example:

| Asset group | Asset subgroup | Asset item | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-7 *(Issue list)*

## 8. Monthly receiving:

Here asset received by a department is generated on monthly basis.

Example: for ICU

| Asset group | Asset subgroup | Asset item | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-8 *( Monthly Receiving report)*

## 9. Purchase order:

Here report of purchase order generated in a particular time period can be generated out.

Example:

| Asset group | Asset subgroup | Asset item | Location | PO |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | Finance department | PO/11 |
| computer and ancillaries | ancillaries | Jaserjet | IT department | PO/34 |
| computer and ancillaries | laptop | compaq 420 | Finance department | PO/43 |
| wooden items | table | office table | Accounts | P0/11 |

**Table**-9 *(Purchase order report)*

## 10. Receiving list:

Here receiving of various assets all over the places seen in the reports in one go. User can put some conditions such as asset wise or location wise list.

Example:

| Asset group | Asset subgroup | Asset item | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-10 *(Receiving list)*

## 11. Requisition list:

Here assets request from various departments can be seen in the report for the particular user defined time period in the reports. Usetr can apply some conditions such as asset wise or location wise list.

Example:

| Asset group | Asset subgroup | Asset item | Asset number | Location | Date |
|---|---|---|---|---|---|
| computer and ancillaries | Computer | HP 400 | HP 400/1 | Finance department | 31-Jan |
| computer and ancillaries | Ancillaries | jaserjet | laserjet/33 | IT department | 5-Feb |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department | 10-Mar |
| wooden items | table | office table | TAB/100 | Accounts | 18-Sep |

**Table**-11 *(Requisition List)*

## 12. Vendor list:

Here the list of total vendors of the Hospital can be generated out.

Example:

| Asset group | Asset subgroup | Asset | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-12 *(Vendor List)*

## 13. Fixed asset maintenance schedule:

Here report of maintenance shedule is generated for various assets for a particular time period.

Example:

| Asset group | Asset subgroup | Asset | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-13 *(Fixed asset maintenance schedule report)*

## 14. Foreign currency order:

Here foreign currency or native currency purchase orders list can be generated for assets.

Example:

List for US Dollar currency

| Asset group | Asset subgroup | Asset | Asset number | Location |
|---|---|---|---|---|
| computer and ancillaries | computers | HP 400 | HP 400/1 | Finance department |
| computer and ancillaries | ancillaries | jaserjet | laserjet/33 | IT department |

| | | | | |
|---|---|---|---|---|
| computer and ancillaries | laptop | compaq 420 | CMQ 420/45 | Finance department |
| wooden items | table | office table | TAB/100 | Accounts |

**Table**-14 *( Foreign currency order report)*

## 4.0 Objective:

**"Implementation of fixed asset management system to manage Assets and calculate the Net Worth of the Hospital "**

During implementing FAMS following are the sub-objectives:

- **Collection of data: both by physical inventory as well as looking at the various registers of assets**
- **Data cleaning: for uniform nomenclatures for similar assets**
- **System testing**
- **Uploading data to the software(Fix Asset Management module)**
- **Training of users**
- **GO LIVE**
- **Defining and documenting standard operating procedures**

## 5.0 Methodology:-

It is an observational and analytical study. There are various methods followed at different stage of implementation of Fixed Asset Management Module, which are as follows.

## 5.1 Data collection:

The data was collected from various departments some of the key areas are listed below-

| | | |
|---|---|---|
| Medical Record Department | Nephrology/Urology OPD | Pharmacy |
| Dr. Hostel | Billing | CSSD |
| Maintenance | Biomedical | Cytopathology |
| General Ward | Blood Bank | Dialysis Ward |
| Academics Room | Cash department | Doctor's lounge |
| Administrative Floor | Casualty Observation Ward | F-Block Basement |
| Admission | Central Store | Finance Department |
| Bed lying in Car Parking | CIC | Fire Office |
| Billing | Condemnation Store | Homeopathy Department |
| Horticulture | HR Department | Labor Room |
| Library | Pharmacy Cash Counter | Nursing Superintendent Office |
| Purchase Department | Receiving Store | Renal Centre |
| Research Cell | Sanitation | Security Office |
| Seminar Room | Staff Quarters | HDU |
| Telephone exchange | Obstetrician & Gynecology | OT |
| KTU | Nursing hostel | Working women hostel |
| ICU | NICU | Physiotherapy Department |
| Genetic Laboratory | Hematology Laboratory | Casualty department |

**Table-15** *(Areas Covered for FAMS)*

For collecting data about fixed assets, teams are made and then been sent for data collection from various areas. The data is collected from various areas by identifying physical inventory as well as verifying them with the asset registers of the particular

area first collected manually on sheets and after that they are typed in excel sheets each day.

**Parameters for Data Collection:**

- The data was collected against following parameters-
- At the site by observing physical inventory and registers the data was collected against its name, manufacturer, location, model name, model number, serial number.
- At the time of collecting data the assets were tagged with physical sticker which will be removed with permanent barcode stickers once data was typed and these are taken printouts and sent back to the department or the area to which it belongs for the verification and getting the financial value, date of installation or acquisition, maintenance contract, warranty etc.

## 5.2 Data cleaning:

Before cleaning data the assets were classified in groups and subgroups for example medical equipment would be group and cardiac monitor will be subgroup and in each subgroup the cardiac monitor of various companies such as G.E. OR VIEW SONIC will be classified. In data cleaning the uniform nomenclature of the similar assets is done this removes the difference in the names of same asset recorded by different teams. All data cleaning will be done in MS Access.

## 5.3 System Testing:

The testing of the system was done by the hospital IT staff along with the data collection and its cleaning so that it can be debugged and get ready to go live with actual data. Lots of bugs were found and were sorted out with the help of vendor with team viewer.

## 5.4 Uploading data to the software:

The cleaned data then will be uploaded to the main software that is Prodigious of which the fixed asset management is an integral part.

## 5.5 Training of users:

As soon as the data is given for uploading the training of the users will be done and they will be trained according to the work and will be given credentials to use the system according to their roles.

### 5.6 GO LIVE:

After uploading of complete data, the Big Bang go live will be done.

## 5.7 Defining and Documenting SOP:

Procedures relating to fixed asset management that had to be followed by all users within the hospital.

**6.0 Limitations:** There are various limitations during the whole process these are specified as follows:

a) **Data collection:-**

- At the time of data collection, the equipments were without details such as manufacturer, model name, model number, serial number etc. So the some assets had little details and those details are mandatory details in the system. In some registers the model no is recorded as serial no or vice-versa.
- There were some assets which do not belong to that particular area but still lying there because of transferring of assets that created a problem in tagging the assets.
- In case of some assets there were missing data in the financial registers such as purchase cost, date of purchase, insurance details, contract details etc...

  The assets which are too old and have crossed their expected life, getting their financial value is difficult.

- Some assets those were condemned but still there or assets which are on rental basis and are about to be sent back to the vendor before the system go live had more chances of getting tagged
- In case of some assets which are lying outside hospital but can be moved anywhere or may get damaged itself, tagging them in terms of location is a major problem.
- The name of the equipment in the purchase order is different but the actual name which is familiar to users is different so that creating problem when reviewing is done to get the other details from the records.
- Tagging of assets in the same area was different in terms of location.
- Identifying whether the equipment is consists of individual assets which can be detached or the whole equipment is single entity.
- Assets which do not come under fixed assets also have a chance to get tagged which is wastage of time and resources.
- The assets which in drawer and are not shown to the data collection team is more likely not to be tagged.
- The assets of contractor which does not belong to hospital but still lying there are also likely to be tagged.
- If some asset is being used for the patient, it is difficult to get the complete details of that asset because you cannot move it or may not be able to read its details.
- Personal things of the employees are also likely to be tagged if the team is unaware about its ownership status.

**b) Data cleaning:-**

Different data collection teams used different vocabulary for the same assets so data cleaning is a cumbersome thing before data gets ready for uploading. And at lots of places there was confusion about which should come in which group or subgroup.

**c) Software:-**

The existing solution of the fixed asset management was found not to have some functionality which hospital requires, supporting day to day activity. Lots of bugs are found in the software which has to be corrected before uploading of data.

## 7.0 Analysis:

Analysis was done as follows:

## 7.1 Data analysis:

The analysis was done on the sample data out of huge data which were collected from various departments and areas.

In this analysis the data is analyzed in terms of total asset count a particular department or area, total furniture count, the assets which were initially recorded in sheets but had to be excluded because of policy changes, total assets of which teams were unable to collect full details, housekeeping stuff got tagged with other department assets, total assets which were there in the department but not working, total computers and ancillaries which were not in account of the departments etc.

### 7.1.1 ICU

| SERIAL NUMBER | ASSET DETAILS | QUANTITY |
|---|---|---|
| **1** | **Assets supposed to be with serial number** | **110** |
| **2** | **Assets ( difficult to get serial numbers of + missing serial numbers )** | **51** |
| **3** | **Housekeeping assets** | **35** |
| **4** | **Excluded assets** | **74** |
| **5** | **Syringe pumps with serial numbers** | **13** |
| **6** | **Syringe pumps ( difficult to get serial numbers of )** | **4** |
| **7** | **Infusion pumps with serial numbers** | **7** |
| **8** | **Infusion pumps ( difficult to get serial numbers of )** | **1** |
| **9** | **Wooden assets and chairs** | **48 + 50** |

| | | |
|---|---|---|
| **10** | **Total Assets** | **610** |

**Table-16** *(Asset count in the ICU)*

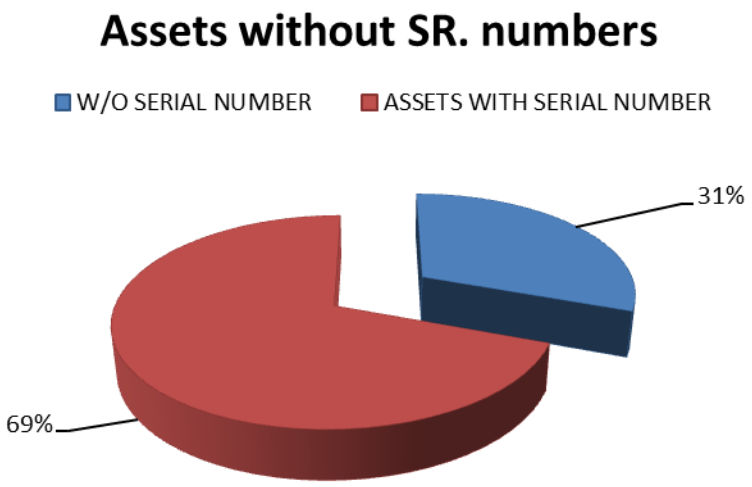



**Figure-37** *(Percentage of Assets with and without Serial Numbers)*

The above figure shows that in ICU, the assets which were supposed to have all details but due to various reasons such as the asset was being used for a critical patient and touching that assets may affect patient conditions or the assets were having missing details.

So it was found that out of 167 such assets 31% assets were not having details in the data collection sheets.

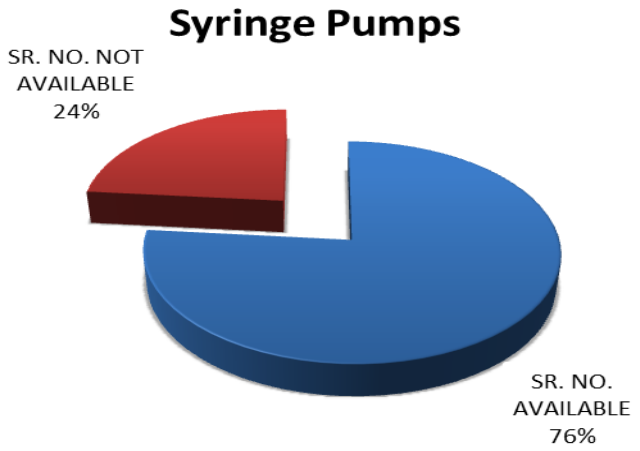



**Figure-38** *(Percentage of Syringe Pumps with and without Serial Numbers)*

It was found that the syringe pumps whic he patients , out of 17 syringe pumps 24% were not recorded with full details.

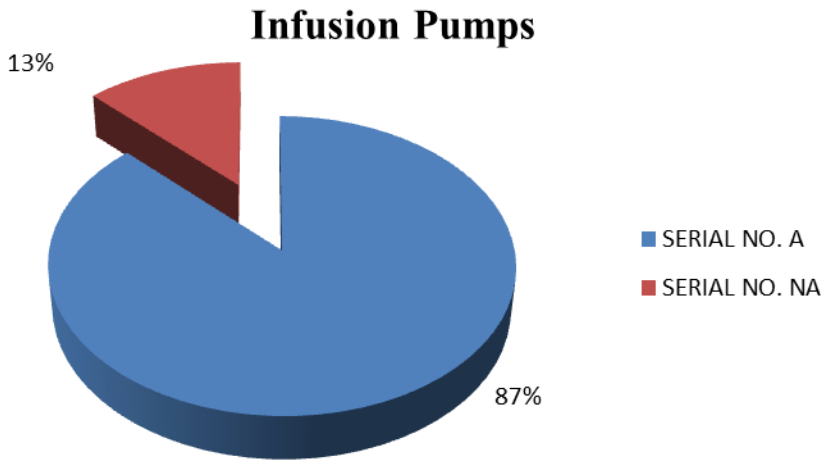



**Figure-39** *(Percentage of Infusion with and without Serial*

It was found that the infusion pumps which were being used for the patients, out of 8 infusion pumps 13% were not recorded with full details.

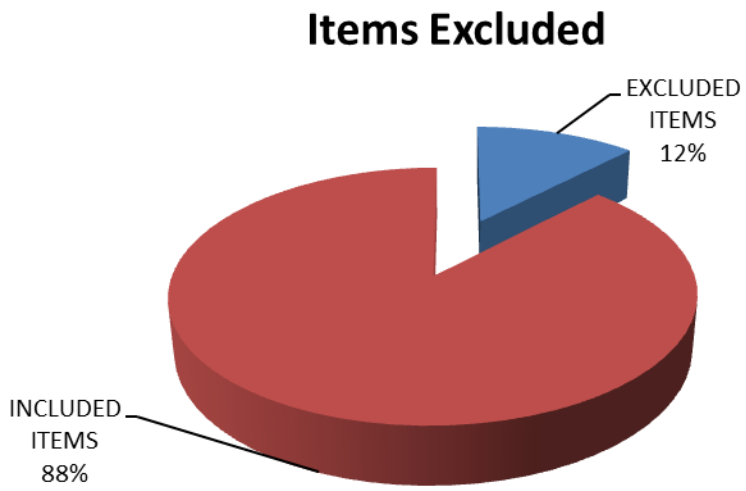



**Figure-40** *(Percentage of Assets had to be excluded)*

It is evident that due to miscommunication or undercommunication , out of 610 assets 12% assets had to be excuded before importing then to the main software, which was a wastage of time and human resource.

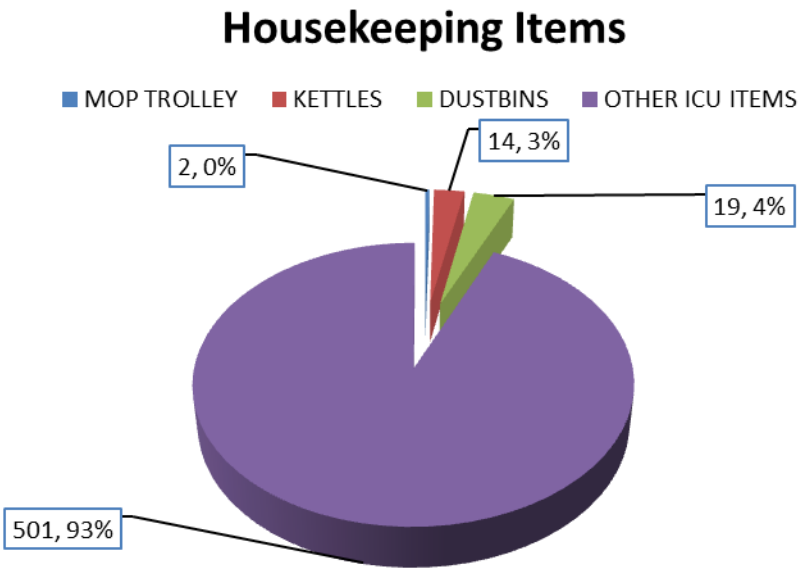



**Figure-41** *(Percentage Distribution of Housekeeping Assets)*

It was found that even after excluding assets which were not fixed assets, out of 501 assets 7% assets were of house keeping which were tagged against the plac e where they were found, which can lead to a lot of discrepencies at the end.

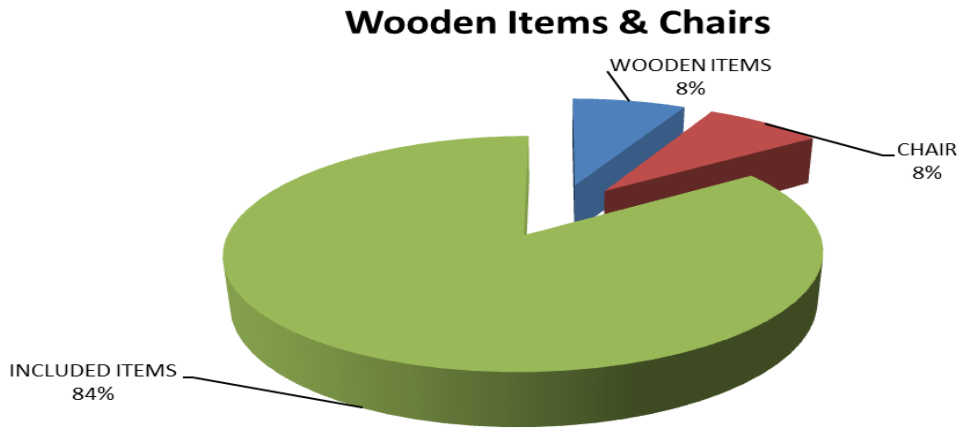



**Figure-42** *(Percentage Distribution of Furniture)*

It is found that out of 501 included assets, chairs and wooden assets were found 16%, which can lead to wrong financial implications in system reports.

### 7.1.2 Hostel

The sample size of 1157 assets includes the data from Nursing Hostel and Working Women Hostel

| SERIAL NUMBER | ASSET DETAILS | QUANTITY |
|---|---|---|
| 1 | Wooden Almirah | 7 |
| 2 | Steel Almirah | 65 |
| 3 | Wooden Cot | 223 |
| 4 | Table & Bench | 221 |

| | | |
|---|---|---|
| **5** | **Dustbin** | **25** |
| **6** | **Fan** | **160** |
| **7** | **Chair & Sofa** | **426** |
| **8** | **Other Assets( With Serial numbers )** | **30** |
| **9** | **Total assets** | **1157** |

**Table-17** *(Assets count in the Hostel)*

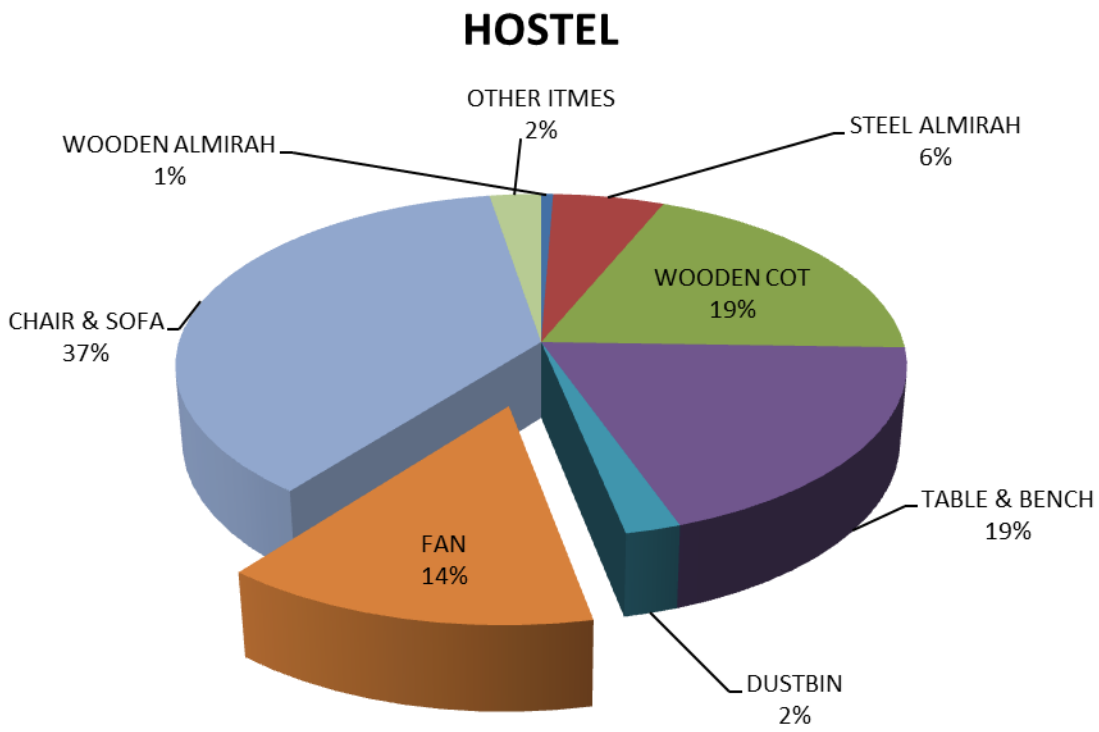



**Figure-43** *(Percentage Distribution of Assets in the Hostel)*

From the above pie diagram it was found that the most of the assets in hostel were pron not have exact financial data.

### 7.1.3 Main Building

| SERIAL NUMBERS | ASSET DETAILS | QUANTITY |
|---|---|---|
| 1 | Assets with full details | 387 |
| 2 | Assets without full details | 192 |
| 3 | Other Assets | 765 |
| 4 | Total assets | 1344 |

**Table-18** *(Assets count in the Main Building)*

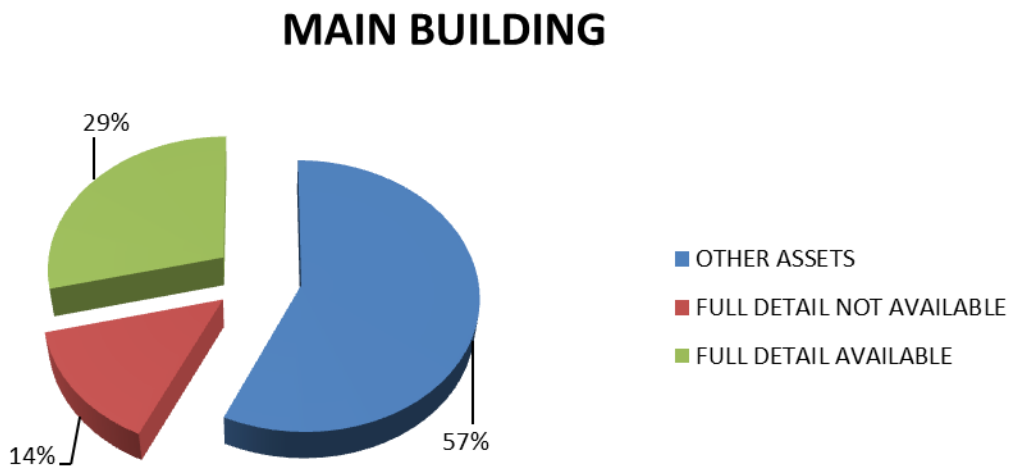



**Figure-44** *(Percentage Distribution of Assets in the Main Building)*

In the main building it was found that out of 1344 assets in the main building 14% were not recorded with full details only 29% were having full details and rest were other assets such as wooden assetss, steel trolley, chairs etc.

### 7.1.4 Laboratory

The laboratory sample data were consists of data collected from X-Ray Laboratory, EEG Laboratory, PFT laboratory, Laser Laboratory. The total sample size is 567.

| SERIAL NUMBER | ASSET DETAILS | QUANTITY |
|---|---|---|
| 1 | Assets without serial, numbers | 170 |
| 2 | Wooden assets | 99 |
| 3 | Steel assets | 21 |
| 4 | Other assets | 277 |
| 5 | Total assets | 567 |

**Table-19** *(Assets count in the Laboratories)*

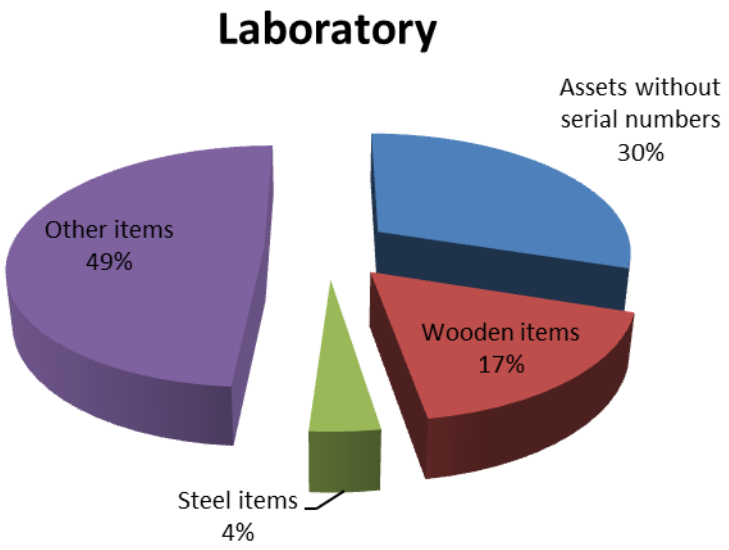



**Figure-45** *(Percentage Distribution of Assets Laboratories)*

In the sample taken out of four laboratories it was found that out of 567 assets 17% were wooden assets such as patient bed, trolleys, table etc.,4% were steel assets and 30% assets were found to be without serial numbers which were supposed to have serial numbers.

Other assets were 49% which include assets which were having serial numbers, chairs etc.

## 7.2 Failure Mode Effect Analysis:

It is a Quality Management tool which helping in identifying the failure modes and its recommendations.

### 7.2.1 Failure Modes

| Serial Number | | Failure Mode | Causes | Consequences |
|---|---|---|---|---|
| 1 | 1.1 | Wrong detail of serial number, model number, model name, manufacturer's name. | • Torn vendor labels<br>• Wrong details in manual registers<br>• Actual manufacturer name is replaced with supplier name<br>• Actual asset name replaced with common name<br>• Wrong entry in data collection sheets at time of observing physical inventory<br>• Wrong entry in to the system | • Difficulty in tracking history<br>• Difficulty in maintaining contracts With actual vendor |

| | | | | |
|---|---|---|---|---|
| | 1.2 | Wrong service contract details | • Contract details are not updated before data collection in the stock registers.<br>• Contracts made in the transition period of data collection and Go live.<br>• Wrong contract entry in data collection sheets or configuration in the software | • Product functionality suffers ( if service is not done in time )<br>• Difficulty in maintaining contracts With actual vendor |
| | 1.3 | Wrong insurance calculations | • Disposed asset is still physically present on the location and in the manual registers<br>• New assets not added in the registers | • Overpayment of insurance cost<br>• Assets not covered by insurance |
| | 1.4 | Wrong depreciation calculations | • Wrong backend depreciation formula<br>• Wrong policies<br>• Confusion between start date and installation date of an asset | • Wrong financial reports and tax calculations |
| 2 | 2.1 | Incomplete financial data of assets in the | • Missing financial record of assets in manual registers | • Discrepancies in financial and tax calculations. |

| | | | | |
|---|---|---|---|---|
| | | system | | |
| | 2.2 | Incorrect or missing specifications of assets which are purchased from local vendors | • Wrong entry of specifications at the time of data collection of physical inventory<br>• No specifications details collected during data collection | • Discrepancies in financial and tax calculations |
| | 2.3 | Same value for old and new asset purchased from local vendors | • Inability to differentiate between new and old assets<br>• Person configuring data does not belong to data collection team so does not know physical condition of asset.<br>• Asset valuation also affected by frequency of usage<br>• Getting financial data in respect of acquisition date is difficult for assets which do not have serial numbers or model number. | • Discrepancies in financial and tax calculations |
| 3 | | Wrong housekeeping asset record | • Housekeeping assets got tagged against the place where they were found | • housekeeping assets count will be less than the actual count<br>• affects |

| | | | | |
|---|---|---|---|---|
| | | | | departmental stock |
| 4 | | Including assets which are not fixed assets | • Misunderstanding of Fixed asset concept and policies<br>• Policy changes. | • Wrong asset record in the system<br>• Wastage of time and human resource in altering data in the system. |
| 5 | | Theft | • Human mischiefs | • Imbalance in departmental assets stock |
| 6 | | Not making an entry of Asset movement in the system | • Person is not aware about the system processes of Asset transfer and disposal etc.<br>• Forgets to enter in the system | • Departmental stock discrepancy |
| 7 | 7.1 | Incomplete tagging of assets | • Tagging is not done at same time at all places<br>• Hidden assets left out of tagging<br>• Fast moving assets | • Departmental stock discrepancy |
| | 7.2 | Wrong tagging of assets | • Due to haphazard transferring of assets from one place to other place<br>• Human error<br>• | • Departmental stock discrepancy |
| | 7.3 | Damaging of tags | • Sterilization of assets in OT<br>• Chemical used for cleaning | • Difficulty in identifying asset |

| | | | | |
|---|---|---|---|---|
| | | | assets in the hospital<br>• Tearing of tags<br>• Bad quality of tag material | |

**Table-20** *(Failure Modes)*

### 7.2.2 Recommendations:

| **Serial Number** | | **Failure Mode** | **Recommendations** |
|---|---|---|---|
| 1 | 1.1 | Wrong detail of serial number, model number, model name, manufacturer's name. | • If possible the data should be directly entered into the excel sheets or details should be written in legible hand writing.<br>• Data cleaning should be done before importing data to the software and printed sheets should be sent back to the native area for rechecking and getting financial data. |
| | 1.2 | Wrong contract details | • Contract details should be taken from the updated latest record.<br>• Department should be asked for new contracts before go live. |
| | 1.3 | Wrong insurance calculations | • Assets details should be taken from the updated registers<br>• Newly added assets should be checked once again before go live |

| | | | |
|---|---|---|---|
| | 1.4 | Wrong depreciation calculations | • Depreciation formula should be standardized and should be checked before freezing it. |
| 2 | 2.1 | Incomplete financial data of assets in the system | • If data is not available anywhere then only estimated rough valuation can be done |
| | 2.2 | Incorrect or missing specifications of assets which are purchased from local vendors | • Detailed specifications should be recorded of each asset on the first go and if not been captured, should be captured in while rechecking is done |
| | 2.3 | Same value for old and new asset purchased from local vendors | • Those assets which do not have any financial record, their Valuation should be done on the basis of their physical condition. |
| 3 | | Wrong housekeeping asset record | • Housekeeping assets should not be tagged against other areas instead they should be tagged for housekeeping.<br>• Engraving should be done for frequently washable assets |
| 4 | | Including assets which are not fixed assets | • The fixed asset concept should be conveyed properly.<br>• Data cleaning should be done before |

| | | | |
|---|---|---|---|
| | | | finalizing excel sheets. |
| 5 | | Theft | • If possible asset should be tagged with RFID; that will also help in tracking of assets.<br>• Entry and exit of assets should be tracked manually. |
| 6 | | Not making an entry of Asset movement in the system | • Staff should be made aware about the processes of FAM<br>• Tag should have a line "Do not transfer/ dispose without entering into system". |
| 7 | 7.1 | Incomplete tagging of assets | • All shelve and places should be reached by data collection team<br>• Department in-charge should be asked for left out assets |
| | 7.2 | Wrong tagging of assets | • Ownership of the asset should be confirmed before tagging it.<br>• Tag of the asset and its description should be matched.<br>• After go live the barcode should be scanned to verify the description of assets |
| | 7.3 | Damaging of tags | • The assets which are frequently washed should be engraved instead of putting a sticker.<br>• Tag can be changed with new once just in case if it is damaged at the time of auditing. |

**Table-21** *(Recommendation)*

### 7.2.3 Risk priority number:

It is the number which indicates the overall severity of the failure mode.

Risk Priority Number= *likeliness of occurrence x likeliness of detectability x likeliness of severity*

| **Serial Number** | | **Failure Mode** | **Likeliness of occurrence** | **Likeliness of detectability** | **Likeliness of severity** | **RPN** |
|---|---|---|---|---|---|---|
| 1 | 1.1 | Wrong detail of serial number, model number, model name, manufacturer's name. | 2 | 2 | 8 | 32 |
| | 1.2 | Wrong contract details | 8 | 3 | 9 | 216 |
| | 1.3 | Wrong insurance calculations | 3 | 5 | 9 | 135 |
| | 1.4 | Wrong depreciation calculations | 1 | 5 | 8 | 40 |
| 2 | 2.1 | Incomplete financial data of assets in the system | 9 | 2 | 9 | 162 |
| | 2.2 | Incorrect or missing specifications of assets which are purchased from local vendors | 7 | 1 | 5 | 35 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 2.3 | Same value for old and new asset purchased from local vendors | 7 | 1 | 6 | 42 |
| 3 | | Wrong housekeeping asset record | 8 | 8 | 1 | 64 |
| 4 | | Including assets which are not fixed Assets | 1 | 9 | 8 | 72 |
| 5 | | Theft | 1 | 9 | 10 | 90 |
| 6 | | Not making an entry of Asset movement in the system | 3 | 2 | 1 | 6 |
| 7 | 7.1 | Incomplete tagging of assets | 1 | 5 | 5 | 25 |
| | 7.2 | Wrong tagging of assets | 1 | 3 | 2 | 6 |
| | 7.3 | Damaging of tags | 2 | 9 | 5 | 90 |

**Table-22** *(Risk Priority Number)*

## 8.0 Findings:

By analyzing the data collected from various areas it was found that out of 3684 assets, 2% had to be excluded, only 18% were with full details out of the assets which should have full details in the data collection sheets. 14% Assets were without full details and the major contribution was from local vendor's assets.

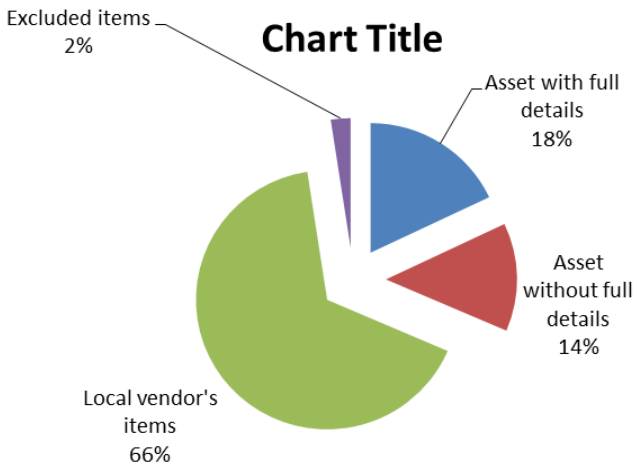
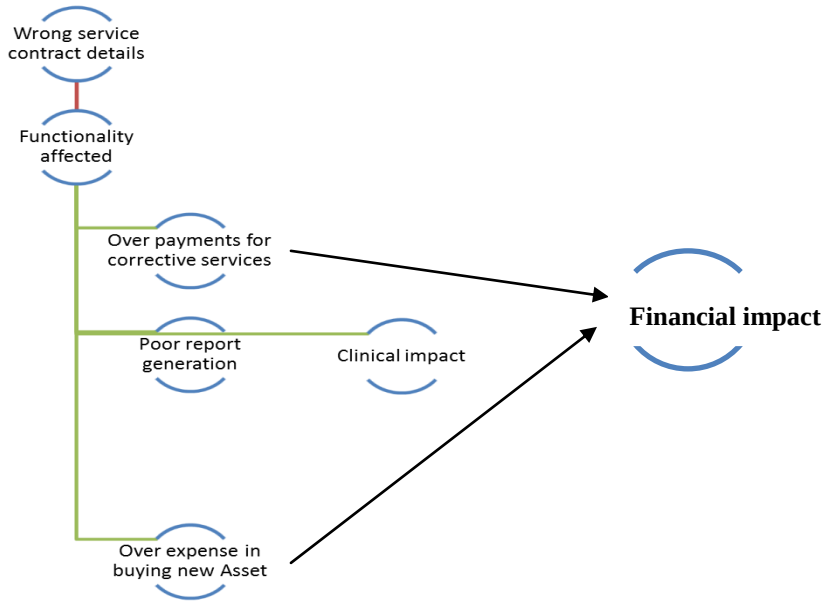



**Figure**-46 (Percentage Distribution of total Assets)

In the failure mode effect analysis it was found that the "Wrong service contract detail", is the most severe failure mode for the FAMS because it affects a lot of things directly or indirectly as shown in the figure:



Wrong service details can lead to wrong functionality or suboptimal functionality of asset and that can lead to overpayment for corrective service, over expense in buying new asset which has the financial impact and poor report generation affects clinically.

Other less severe failure mode was “Incomplete financial data of asset in the system” because they will affect the overall worth of the hospital as well as affect the tax and insurance calculations.

Least severe mode was “Not making entry of asset movement into the system” because it does not affect the overall worth of the hospital or any other financial calculations.

## 9.0 Discussion:

From the analysis it was found that there were almost 14% assets which were not recorded with full details or not having full details because they were either too old or, have missed out their details on them and even department registers were not having their full details or they were being used by critical patient or used by doctors or fixed to a place in such a way that the details cannot be seen at the time of data collection; ICU is more likely to produce this type of data. As approximately 66% assets were from local vendors and the major contributor in my sample was from Hostel so in such case it becomes very difficult to track that assets if tag is lost and moreover in case most of the wooden assets of which the payment is done in lump sum, finding individual price of each asset is very difficult and the same case is there with chair etc. So it was found that valuation of assets from local vendors and tracking them is difficult. It was found that approximately 2% assets had to be excluded from the data collected because the policies were not clear to the data collection teams and some policies got changed in the middle of data collection.

Housekeeping assets were tagged against the place where they were found, this may lead to discrepancy in the assets record of housekeeping and the department stock also because they get transferred easily from one place to other place so a housekeeping asset which is of Department A may be in Department B next day so in that case the whole department stock gets affected because each asset has its unique tag of specific department of area.

It was also found that the temporary tags were lost during the process in the middle so tracking that asset becomes difficult at the time of sticking the permanent barcode on them.

In the failure modes effect analysis, a lot of modes were found where system may go wrong or may produce wrong details. The most severe failure mode found was: wrong service contract details then incomplete financial data of assets because they directly affect the financial calculations which lead to net worth discrepancy of the hospital.

At a lot of place human errors may lead to failure modes of FAMS because data was collected and entered and audited by humans but it was found at failure modes of FAMS because data was collected and entered and audited by humans but it was found at the time of system testing that the system was producing wrong data and at a lot of places redundant and non-standardize fields and tabs were there.

So in failure modes effect analysis basically the severity was tested for financial implications because the whole project was to identify the net worth of the hospital.

## 10.0 Recommendation:

As in my report I have already discussed the recommendations in "Failure Mode Effect Analysis" for the successful Fixed Asset Management Module, finally it was found that implementation of FAMS is quite cumbersome in a brown field hospital because frequent movement of fixed assets in the hospital that creates difficulty in tracking of asset if it gets transferred or disposed before GO LIVE; on the other hand it is difficult to get the financial value of old assets and the assets of which full details are not been recorded at the time of acquiring an assets.

so one of the recommendation which can be suggested is either FAMS should be implemented in the green field hospital or phased GO LIVE should be done instead of BIG BANG GO LOVE because later one can create more problems and it takes time if hospital is

more than 500 beded hospital due to massive data collection which is prone to errors and failure of the system.

Frequent audits should be done after GO LIVE to see whether the system processes are in sync with the physical processes. To eliminate data errors data cleaning should be done before importing data to the software and printed sheets should be sent back to the native area for rechecking and getting financial data. Contract details should be taken from the updated latest record. Department should be asked for new contracts before go live, Assets details should be taken from the updated registers, Newly added assets should be checked once again before go live so that there would be less chances to calculate wrong financial reports and the asset functionality will also be unaffected due to regular maintenance of assets , Depreciation formula should be standardized and should be checked before freezing it to eliminate financial errors. If financial data is not available anywhere then only estimated rough valuation can be done but with the expert advice only. Detailed specifications should be recorded of each asset on the first go and if not been captured, should be captured in while rechecking is done so that their correct valuation can be done. Those assets which do not have any financial record, their Valuation should be done on the basis of their physical condition. Housekeeping assets should not be tagged against other areas instead they should be tagged for housekeeping, Engraving should be done for frequently washable assets on housekeeping assets of other medical equipments. The fixed asset concept should be conveyed properly. If possible asset should be tagged with RFID; that will also help in tracking of assets, Entry and exit of assets should be tracked manually but this option can be a little expensive and may not be 100% effective. Tag should have a line “Do not transfer/ dispose without entering into system” so that nobody make mistake of not entering asset movement in the system. All shelve and places should be reached by data collection team, Department in-charge should be asked for left out assets so that no asset should be left out. Ownership of the asset should be confirmed before tagging it, Tag of the asset and its description should be matched, After go live the barcode should be scanned to verify the description of assets, Tag can be changed with new once just in case if it is damaged at the time of auditing.

Here the two major activities which are very crucial for FAMS are: first the full data should be captured from the beginning till the end and each and every detail related to asset such as its disposal or transfer should be entered into the system then the chance of failures reduces very much.

## 11.0 References: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**Appendices:**

**1- Data Collection Parameters:**

| Sticker number | Description | Manufacturer | Model name | Model number | Serial number |
|---|---|---|---|---|---|
| | | | | | |

Table-23

**2-Failure modes effect analysis:**

| Serial Number | | Failure Mode | Likeliness of occurrence | Likeliness of detectability | Likeliness of severity | RPN |
|---|---|---|---|---|---|---|
| 1 | 1.1 | Wrong detail of serial number, model number, model name, manufacturer's name. | | | | |
| | 1.2 | Wrong contract details | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 1.3 | Wrong insurance calculations | | | | |
| | 1.4 | Wrong depreciation calculations | | | | |
| 2 | 2.1 | Incomplete financial data of assets in the system | | | | |
| | 2.2 | Incorrect or missing specifications of assets which are purchased from local vendors | | | | |
| | 2.3 | Same value for old and new asset purchased from local vendors | | | | |
| 3 | | Wrong housekeeping asset record | | | | |
| 4 | | Including assets which are not fixed Assets | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | | Theft | | | | |
| 6 | | Not making an entry of Asset movement in the system | | | | |
| 7 | 7.1 | Incomplete tagging of assets | | | | |
| | 7.2 | Wrong tagging of assets | | | | |
| | 7.3 | Damaging of tags | | | | |

Table-10