

Presentation on Industrial Visit Mini Project & Main Project-Thesis Phase 1

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Overview-Work done

- Industrial Visit
 - Location : Jubilee Mission Medical College & Research Centre
 - Period : 22 December to 28 February
- Mini Project
 - Preparation of As Is Document
 - Preparation of To Be Document
 - IEEE Technical Paper “**Integration of ICU data into Electronic Medical Records- Issues and Solutions**”
 - Work on Android Applications – ongoing
- Main Project
 - Problem identification – complete
 - Literature Survey– partially complete
 - Solution Strategy – partially complete
 - Implementation - Pending



Overview of Presentation

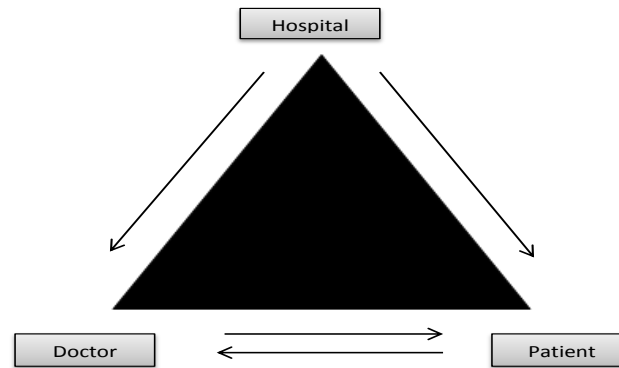
- Short description about the **Industrial training** in Jubilee Mission
- About **Mini Project** : ICU Automation for JMMC – “EMR- Method of Inputting in EMR:- In Doctor’s and Nurse Perspective”
- About our **IEEE conference paper** “*Integration of ICU data into Electronic Medical Records- Issues and Solutions*”
- Description about **Main Project** : Icon Based Text editor Inputting in ICUAS.

Introduction



- Healthcare industry is a wide and intensive form of services which are related to well being of human beings
- It is India's largest sectors in terms of revenue and employment and the sector is expanding rapidly
- Hospital sector which is the major component of the healthcare industry.

Hospital and health care industry



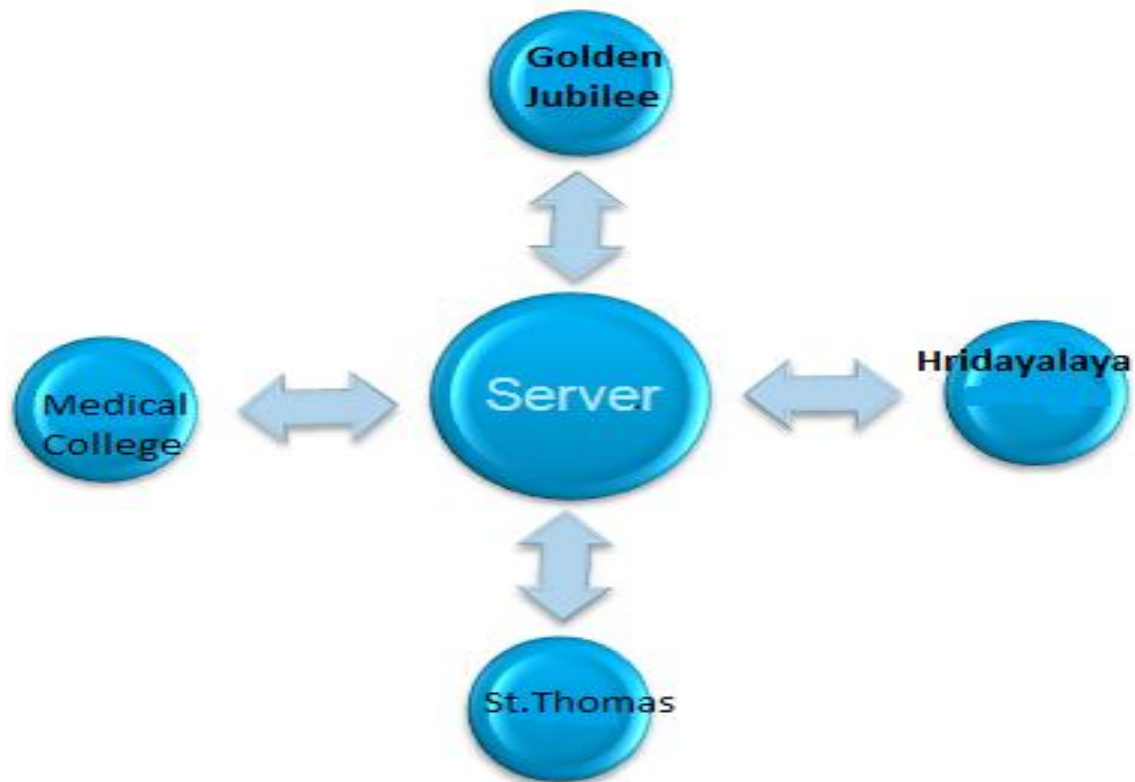
- The major inputs of health care industries are as listed below:
 - Hospitals
 - Medical insurance
 - Medical software
 - Health equipment

Jubilee Mission

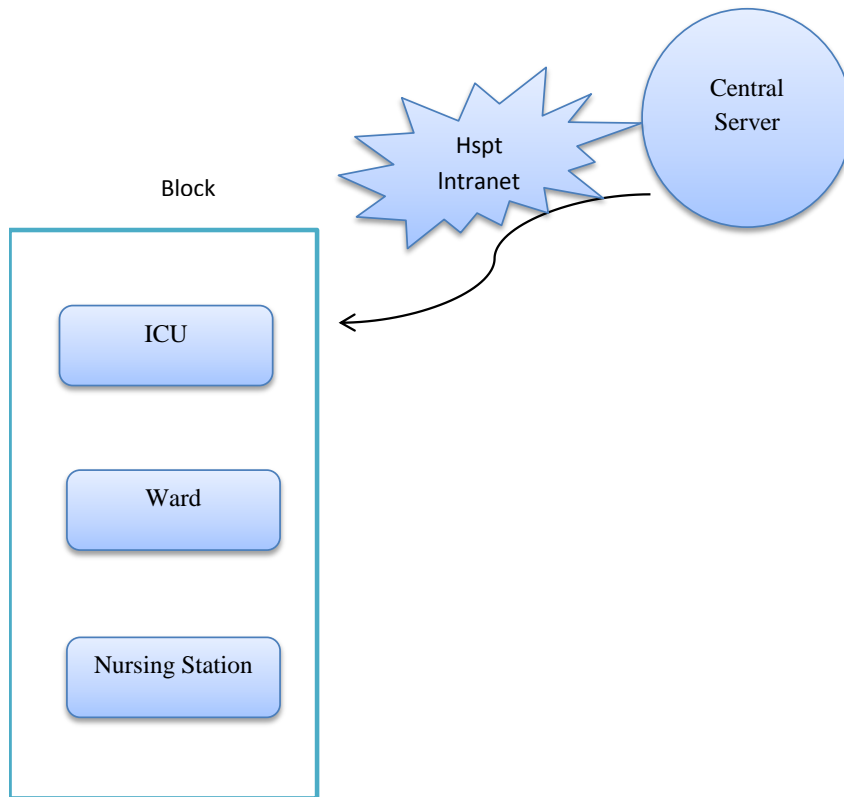


- Jubilee Mission Hospital -poor man's hospital with its mission –"Service in love"
- JMMC has 35 departments running successfully in the 4 blocks named
 - Golden Jubilee Block
 - Hridayalaya
 - St. Thomas Block
 - Medical College Block

Central Server



Server Connectivity



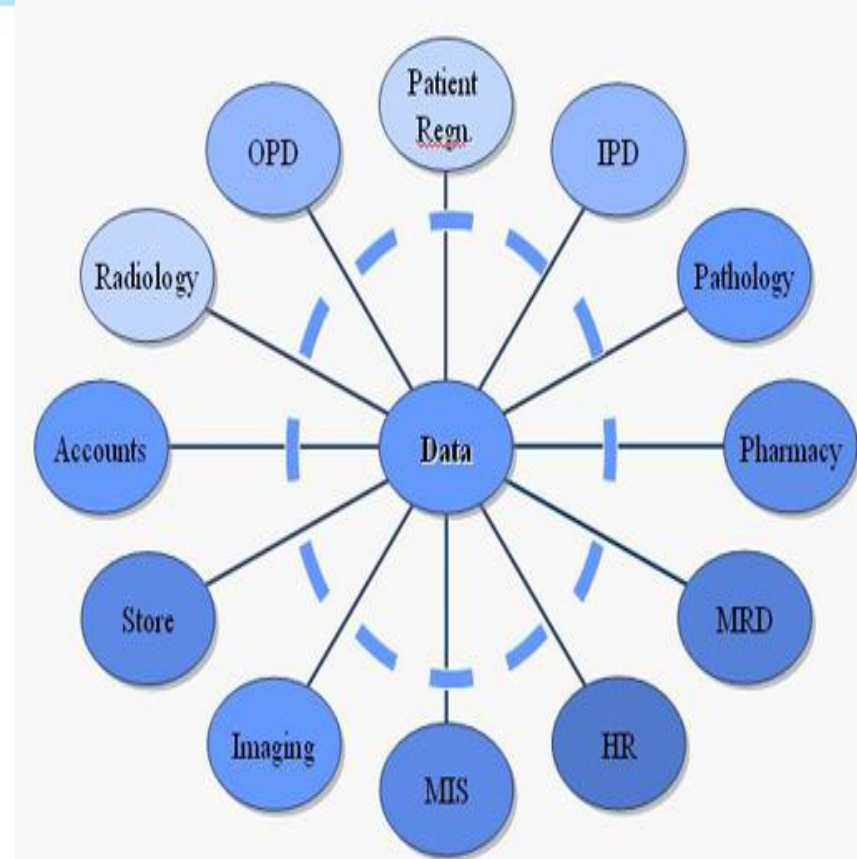


Biomedical Department

- As part of training familiarize with various health equipment
 - ❖ Multipara Monitor -*Schiller- TRUSCOPE mini*
 - ❖ Pulse oximeter - *BPL-CLEO/ENDURA*
 - ❖ Ventilator-Taema
 - ❖ Infusion pump-Terumo
 - ❖ Clinical analyzer
- ❖ Laboratory Equipment
 - *UniCelDxI 600*
 - UniCelDxC 860i
 - LH 750 analyzer etc.

Medical Software

- Medical software is designed for multispecialty hospitals, to cover a wide range of Hospital administration and management processes
- In JMMC entire hospital management software runs on software developed by MUZIRIS softech.





Mini project

EMR-Method of Inputting in
EMR:- In Doctor's and Nurse
Perspective

PMR-Existing System

- PMR is the systematic documentation of a single patient's medical history and care across time within one particular health care provider's
- Is PMR system is efficient enough???

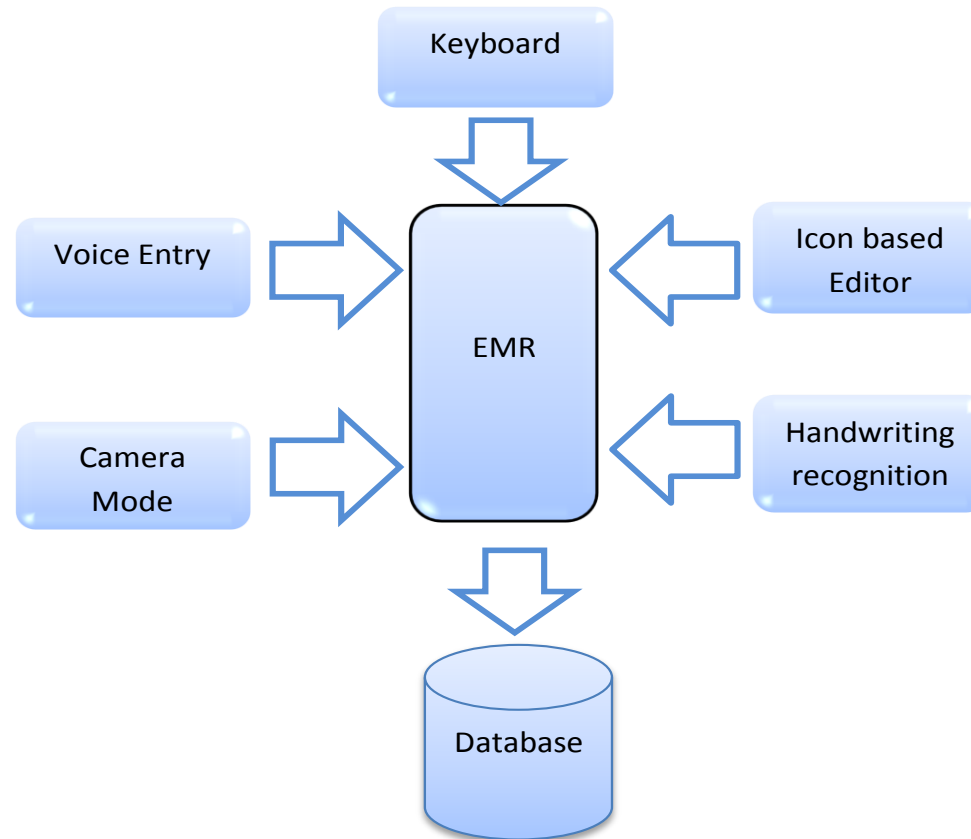


EMR-Proposed System

- An electronic medical record is a digital version of a paper chart that contains all of a patient's medical history from one practice
- The EMR can be accessed conveniently by appropriate health professionals to ensure ultimate maximum and optimal patient care.



Input Method in EMR





Input Modules

- Different modules in input
 - Admission
 - Doctors order
 - Medicine
 - Nurse's Record
 - Intake and output chart
 - TPR chart


Designs-Temperature Measurement

A user interface design for patient information entry. It features a central white area with a blue square labeled "PHOTO" on the left. To the right of the photo are the labels "Patient Name", "Hos No", "Sex", "Age", and "Ward". The interface is framed by a black border. On the left and right sides, there are vertical columns of blue circular buttons labeled "Bed 1" through "Bed 8" and "Bed 9" through "Bed 16" respectively. At the bottom, there are four red circular buttons labeled "TEMP", "PRES", "RESP", and "DIAB".

A user interface design for temperature measurement. It features a central white area with a blue square labeled "PHOTO" on the left. To the right of the photo are the labels "Patient Name", "Hos No", "Sex", "Age", and "Ward". Below these labels are two input fields: "Date" and "Time". Below the "Date" and "Time" fields is a larger blue rectangular area containing an input field labeled "Temprature" and a button labeled "SAVE". The interface is framed by a gray border. On the left and right sides, there are vertical columns of blue circular buttons labeled "Bed 1" through "Bed 8" and "Bed 9" through "Bed 16" respectively. At the bottom, there are four red circular buttons labeled "TEMP", "PRES", "RESP", and "DIAB".

Designs-Doctor's Order

Patient Bed No

 Name(Age/Sex):
PID:
Allergic to:
Blood Group:
Case:

Clinical Order >
Progress Notes
Test Results
Patient Record


Lab Test >
X-Ray
CT-Scan
Medicines
Refer

Select Test

Save

←

Patient Bed No

 Name(Age/Sex):
PID:
Allergic to:
Blood Group:
Case:

Clinical Order >
Progress Notes
Test Results
Patient Record

Lab Test
X-Ray
CT-Scan
Medicines >
Refer

Type:

General Name:

Dosage:

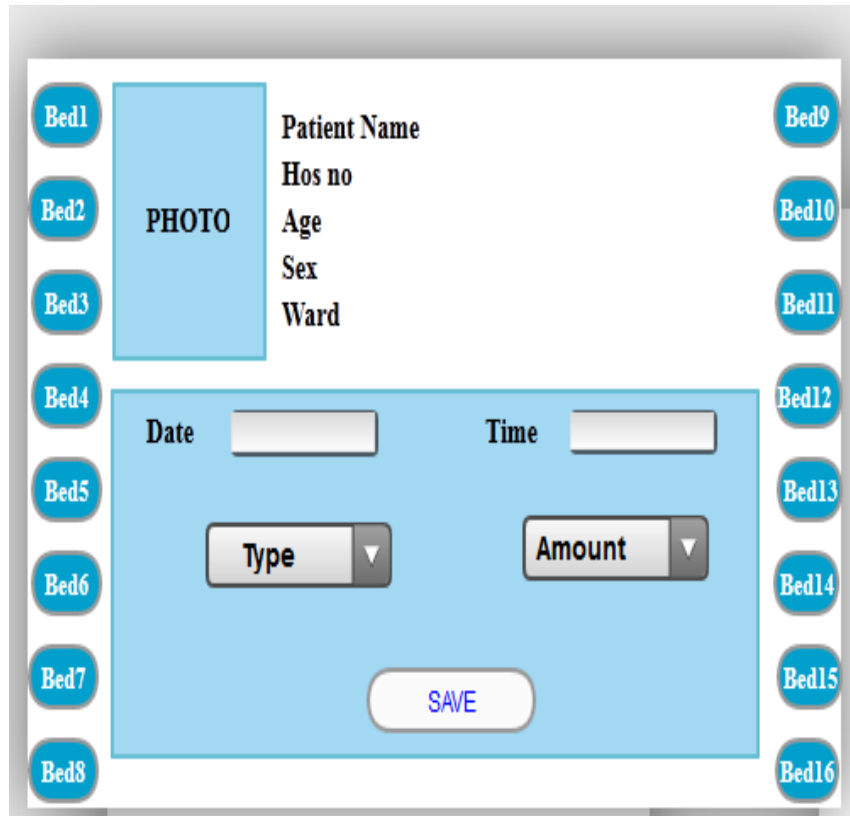
Duration:

No. of days:

←

Save

Design-Intake and output Chart



Bed1 Bed2 Bed3 Bed4 Bed5 Bed6 Bed7 Bed8

PHOTO

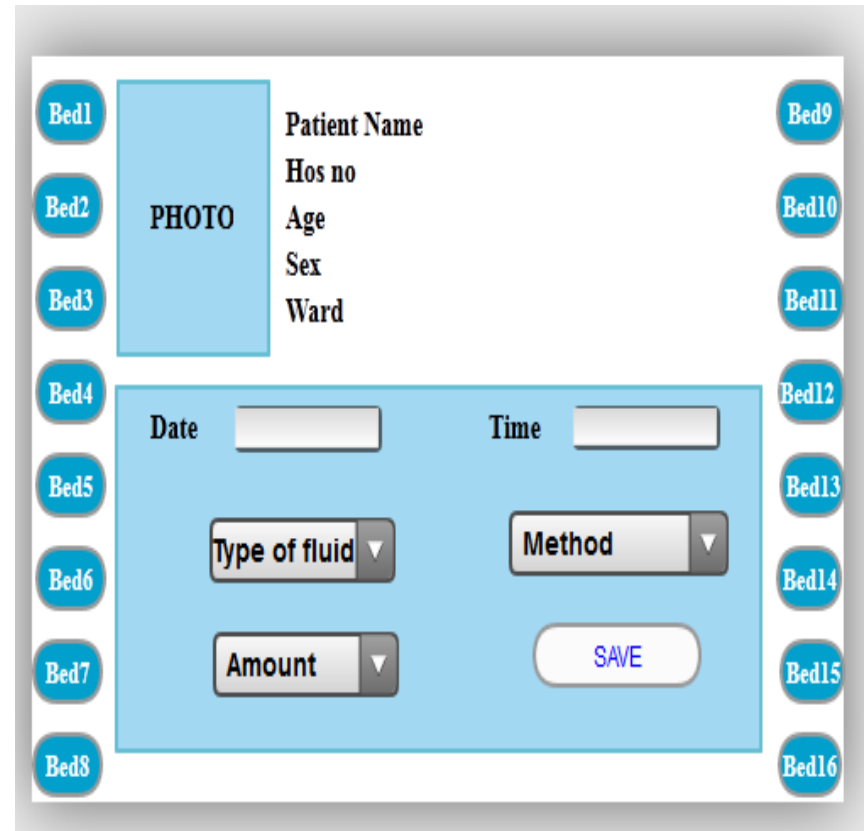
Patient Name
Hos no
Age
Sex
Ward

Bed9 Bed10 Bed11 Bed12 Bed13 Bed14 Bed15 Bed16

Date Time

Type Amount

SAVE



Bed1 Bed2 Bed3 Bed4 Bed5 Bed6 Bed7 Bed8

PHOTO

Patient Name
Hos no
Age
Sex
Ward

Bed9 Bed10 Bed11 Bed12 Bed13 Bed14 Bed15 Bed16

Date Time

Type of fluid Method

Amount SAVE

Conclusion



- This implementation helps in easy inputting in Tablet based systems
- EMR system ensures some good features to health industry
 - Records accessible to many people at remote sites at the same time
 - Information retrieval is almost immediate
 - Customized views of information for specialists



IEEE Conference Paper:
*Integration of ICU data into
Electronic Medical Records- Issues
and Solutions*



About the Conference

- Paper Submitted on : February 12
- Paper get accepted on : February 27
- To be presented on : April 11 or 12
- Venue : Kanyakumari
- Category : Networks – e-health
- Co-ordinator : Dr.George Varkey
- Authors : Dhanyaja . N, Josmy T Jose,Asha Yeldose
- Guide : Anju S.S



Abstract

- The Intensive Care Unit (ICU) is the arena in which many succeed and many others perish in the intense battle between life and death. The systematic documentation of all events here will be invaluable for research purposes. Traditionally these are written on case sheets and maintained in paper form in the Medical Records Department. The advent of electronic medical records (EMR) has not only changed the format of medical records but also increased accessibility of information contained in the repository, especially for research purposes. Unfortunately, in most implementations of Hospital Information Management System, many major pieces of information from the ICU fail to find a place in the EMR. Even in cases where the EMR has the fields corresponding to important information like exact time of delivery of medicines and food, notes by duty nurse, etc., these information are either not entered or incorrectly entered.

The background of the slide features a blurred computer keyboard in shades of blue and white. Overlaid on this is a silver stethoscope with black tubing, positioned diagonally across the lower half of the image. The text is centered over these elements.

Main project – Thesis phase I

Icon Based Text Editor for
Entry of Nurse's Record in
ICU



Problem statement

- As a requirement analysis the proposed work will consider input from nurse's record
- Extension of Mini Project
- Uses the UI and Use Case Diagrams created as part of Mini Project

Introduction-Tablet based system



- For Tablet PCs, text input using key-board and mouse is practically unviable
- To reduce this discomfort in inputting, developed an icon based text editor
- Using this icon based text editor, user construct the text by depressing appropriate icons



Brief Overview- iED

- Define a reasonable set of good icons and associate a sentence or phrase with it
- Pressing multiple icons will generate the edited message
- Number of keystrokes needed to create a note reduces by one order of magnitude



How to Implement???

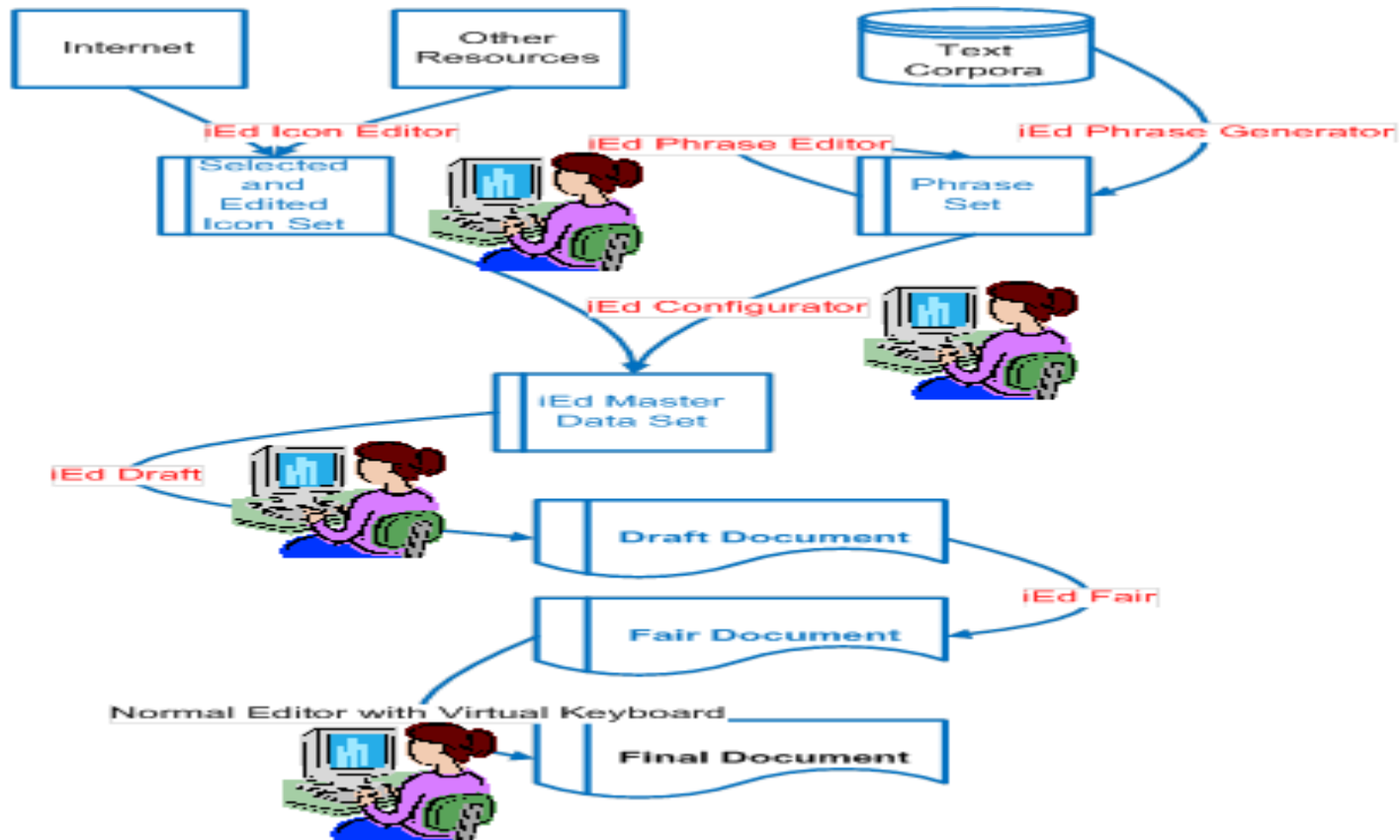
- Analyse the nurses record
- Determine the common phrases
- Develop the good icons associate with the above
- Develop the message aggregator
- Develop the post editor
- Save and clean up



iED

- In icon based text editor mainly two phases
 - Set-up phase
 - Edit phase

iED Structure

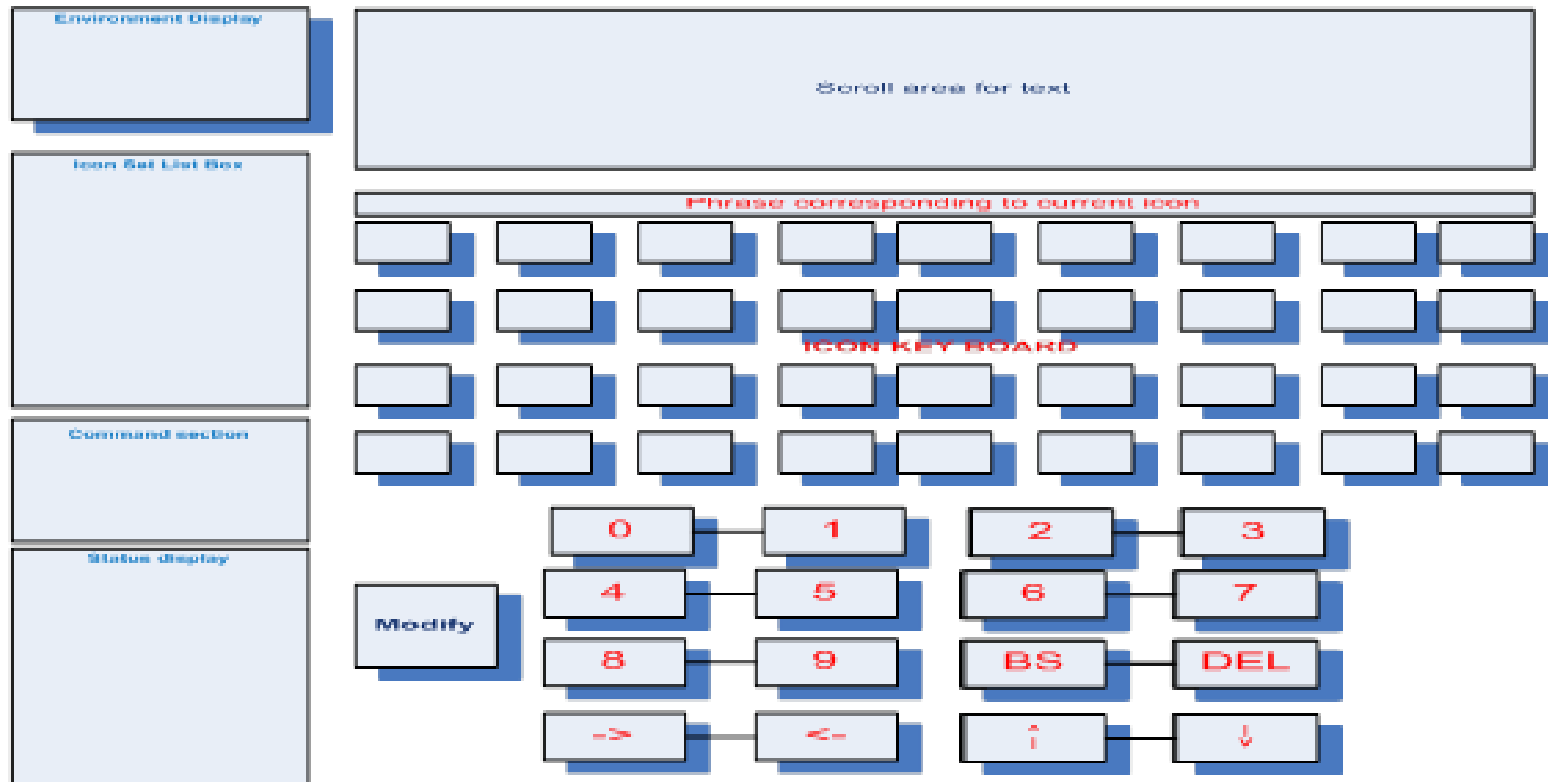




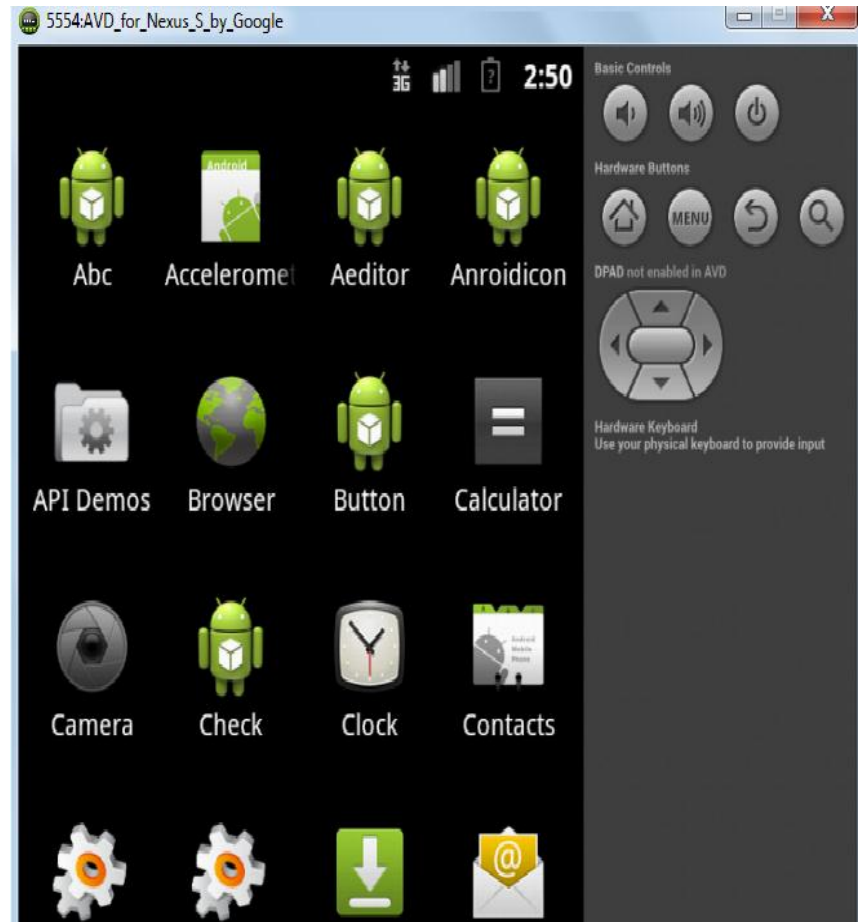
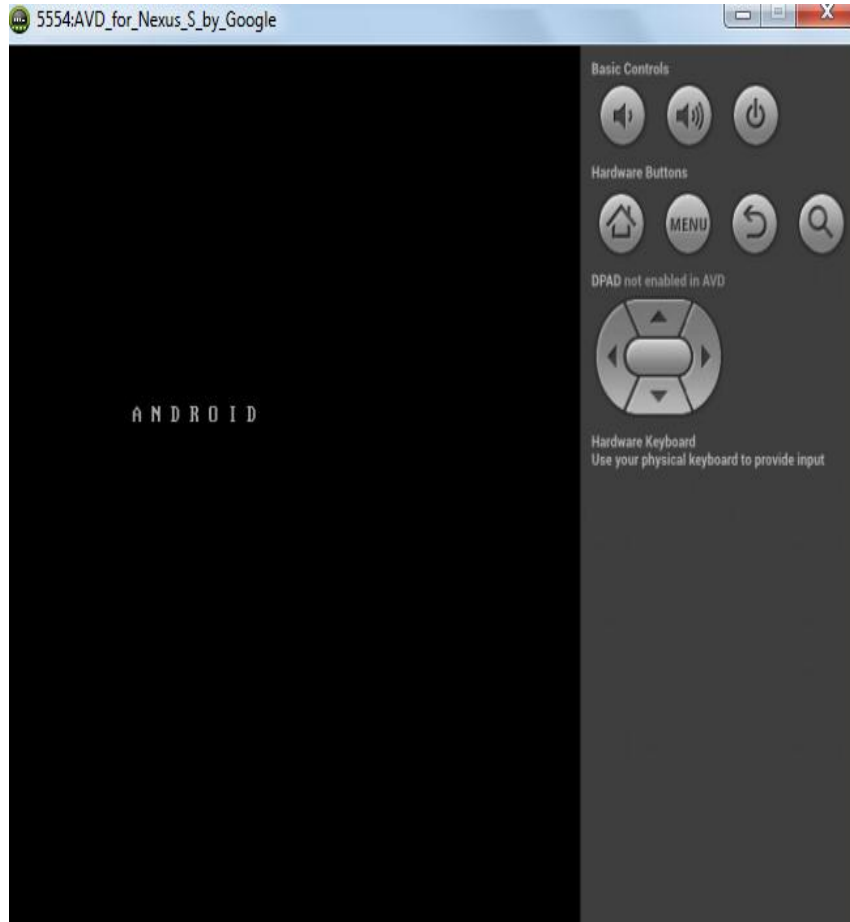
iED Structure...

- Main packages are
 - iEd phrase generator
 - iEd Icon Editor
 - iEd Phrase editor
 - iEd Configurator
 - iEd Draft
 - iEd Fair

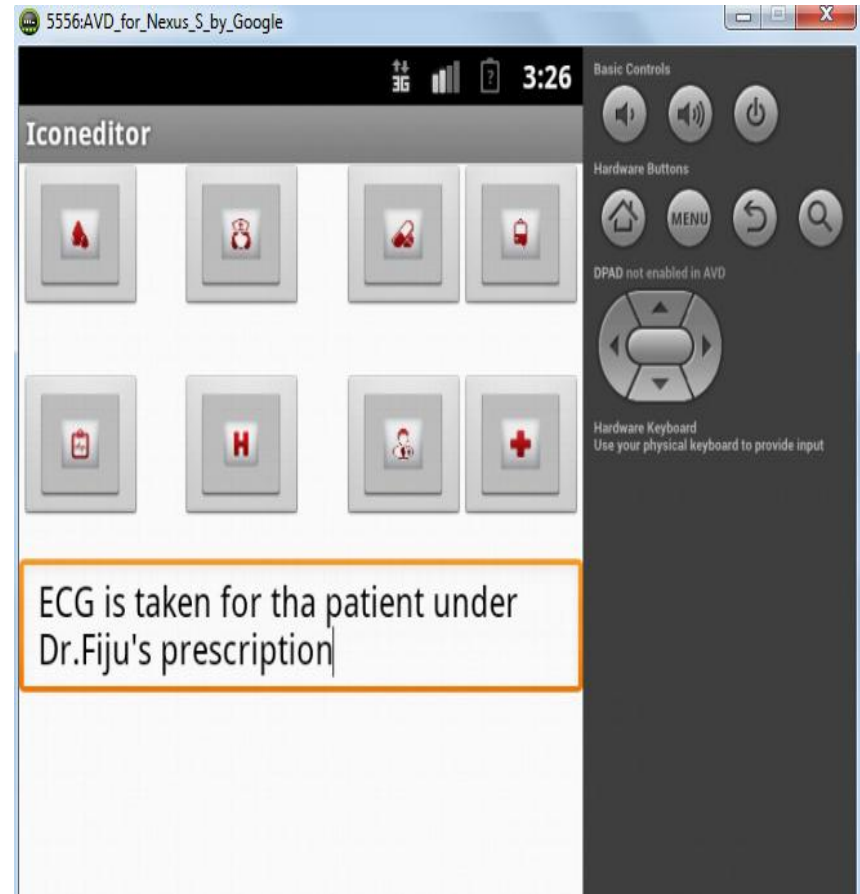
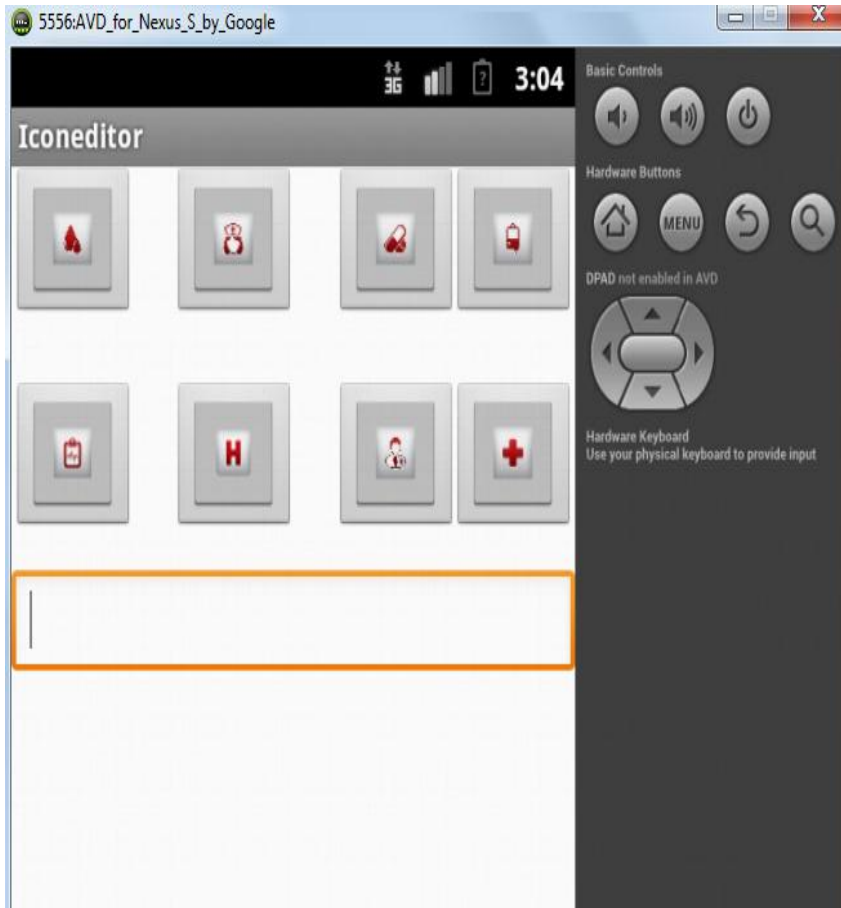
Design-Screen of iED



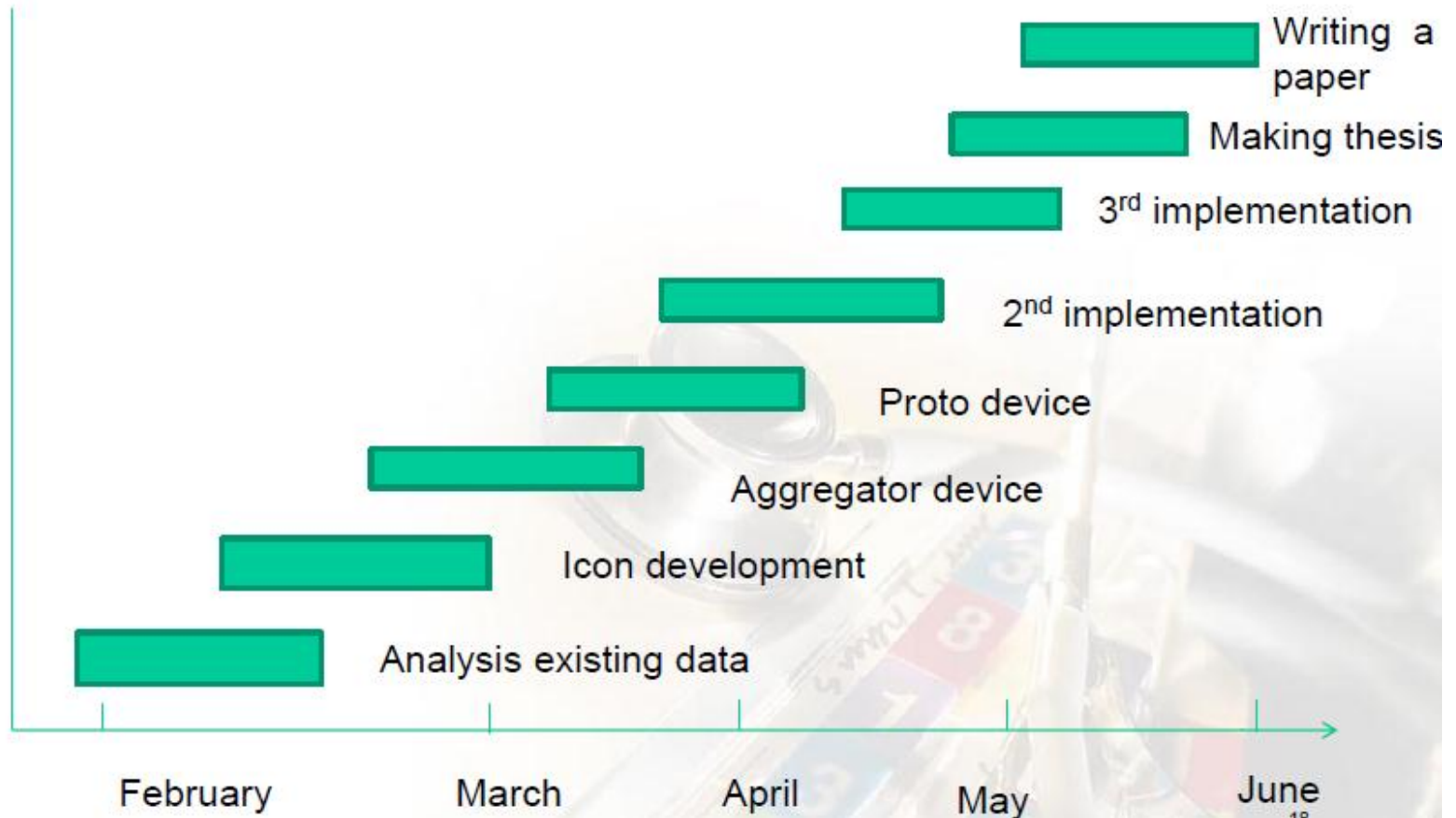
Development Methodology



Testing strategy



Activity Chart





Extension and Future Work

- Expandable for different application
 - Assessment report entered by managers working under him
 - Sale deeds entered by document writers
- It will be modifiable according to user needs



Impact Analysis & Conclusion

- Idea is novel for an intensive care unit
- Once accepted will become the simplest form of message entry
- Easy to implement can be made quite artistic
- The system has been deployed as an Android application
- This idea is submitted as a project in seventh I²U Contest



