Button and its in Medical Information System

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ABSTRACT

Information technology is getting its application in every walk of life. The Medical science is growing at a rapid rate and is becoming increasingly competitive compelling the optimum use of technology. Use of computers in health care system can improve the quality & effectiveness making it cost effective and far reaching. The paper deals with the use of iButton which is basically an electronic chip available in various variants in developing medical information system. The system can be very helpful in storing patient's medical history which can walk with the patient.

Introduction

Computers has become integral part of virtually every activity in an organization, the most common application being keeping recordsd of transactions, generation of reports to high--end business applications like Decision Support System (DSS) and Expert Systems.

The role of IT sector in Indian economy is commendable one with compound annual growth rate of 50% over last five years. Govt. of India has taken many initiatives to take IT to grass root level example being Integration of technology into learning environment; under this Department of Information Technology (DIT) has launched two programs Vidya Vahini and Vidya Gyan providing connectivity to shool across the country and IT infrastructures to many institutes of higher learning.

One of the key areas where IT can be applied meaningfully is health sector. In India, the awareness of common mass about health isnot very encouraging. One of the major factors for this is the level of education. The medical information system as described in the paper can go a long way in helping the patients. It will be cost effective, life saving and informative.
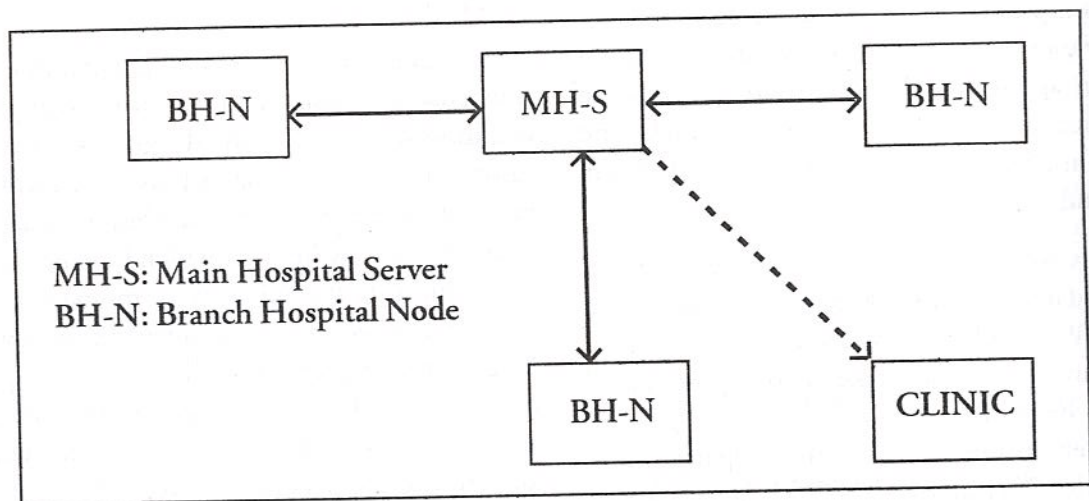
NEED FOR MEDICAL INFORMATION SYSTEM

It is observed sometimes that condition of a patient taken to hospital for treatment getting worse on administration of some drug/treatments. The reason may be that the patient has some allergy to a specific drug or may have medical history of diabetes, blood pressure, asthma etc which he is not able to communicate to the doctor at the moment, or may be it is an emergency. In a country like India where filing of prescription and diagnosis is not very common. The doctor may suggest him some test/ diagnosis which he had undergone recently but is not carrying the papers with him, obviously it is not cost effective. One of the crucial cases arises during pregnancy, as at the time of deliver all the medical reports may be required at any time. If the expecting mother is going to the same hospital and the doctor who has supervised her during pregnancy is available, then the doctor may be knowing the medical history of her but if she is canging the place, hospital or if the supervising doctor is not available then the medical file plays an important role and absence of it may lead to a problem if it is a complicated case. The medical information system can take care of all the above problem and similar cases by providing correct authentic information in time, which may save the life of the patient.

MEDICAL INFORMATION SYSTEM

The medical information system can be used by medical incorporations, middle and small-scale clinics, Govt. hospitals etc. Suppose a network with a central server is considered. When a patient goes to one of these hospital all his medical details will be recorded in hospital Database and a copy will be recorded in an electronic chip viz iButton. iButton is a 16 mm computer chip armored in a stainless steel can. Every hospital can be assigned with a unique identification number and will be stored in the iButton, which can ve worn by the patient as a locket, bracelet or can be kept in key fob. So, the crucial information walks with the person. When the patient visits another branch of the hospital the doctor can retrieve the crucial medical information about the person along with the parent hospital id from the iButton and if required can access the hospital database for detail information. The small and medium scale clinic can tie up with one of these hospitals for accessing the database through network on certain terms and conditions, the modalities can be mutually worked out. This is in line with the current trend of big names in hospital, authorizing clinics and diagnostic center for consulation and conducting test under their brand name.

The above discussion is shown diagrammatically below, the two side arrows showing interchange of patient's information from main hospital server and the branch hospital node.

MH-S: Main Hospital Server
BH-N: Branch Hospital Node

THE CONCEPTUAL MODEL: The following points are to be discussed in conceptual model for Medical Information System. When a patient arrives at hospital, do the following.

1. Identify the patient with iButton number (Unique Number).

2. Record the required information iButton.

3. In hospital, the database of each patient corresponding to the unique number is maintained.

4. When the patient arrives, check whether he/she have the iButton.

5. If yes, then check the hospital id to know whether issued from the same hospital. If yes, then retrieve the information from the database otherwise find from which hospital it was issued and check whether the hospital is in network. If yes, then get the information otherwise use some other mode to get the information within a stipulated time.

6. If no, go for the usual line of the treatment.

Flow Chart for the Model
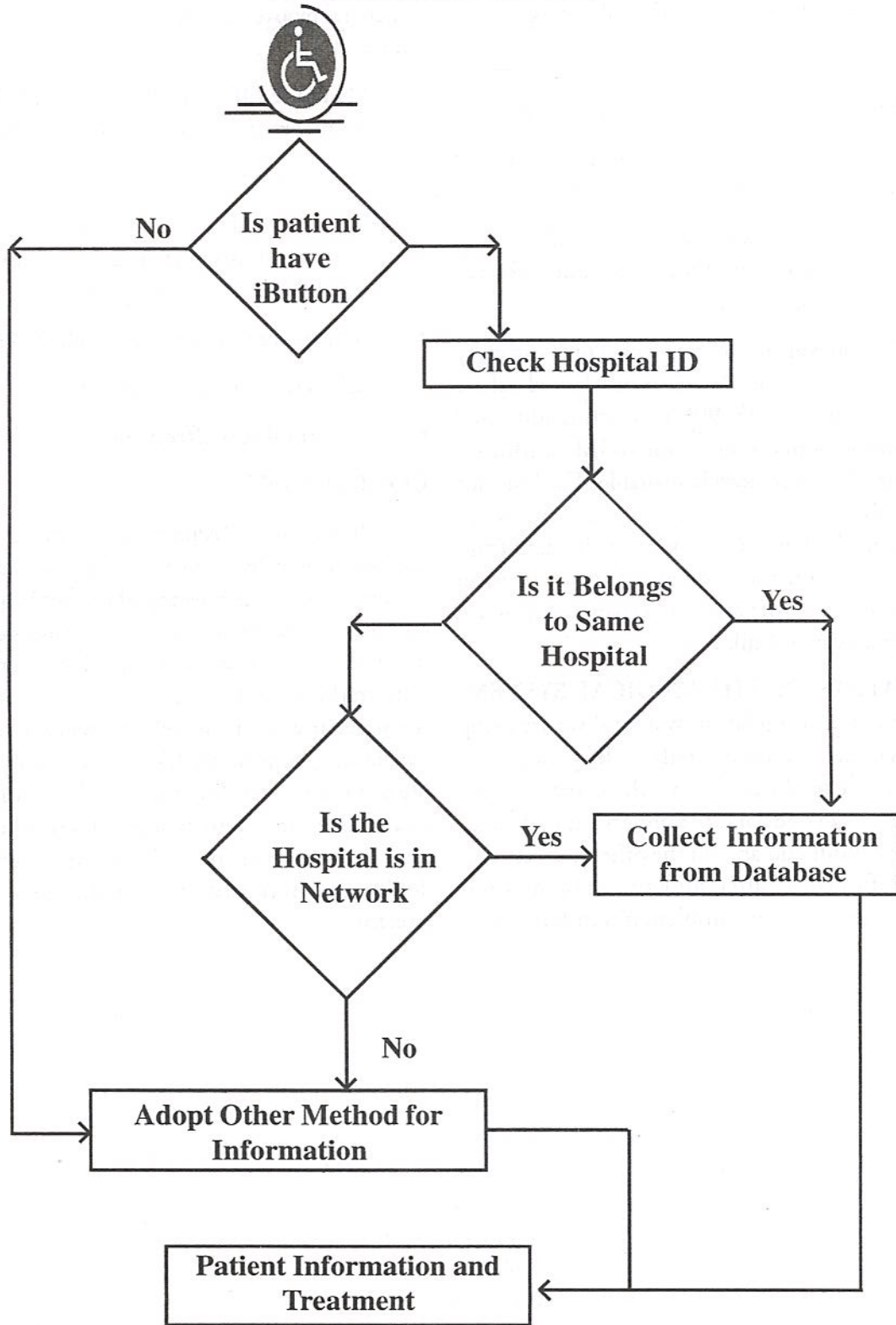
COMPONENTS OF THE SYSTEM: The system essentially consists of the following .

- iButton
- A host system (A PC/laptop/palmtop)
- A read/write device to get information in and out of the button (blue dot receptor)
- A layer of software to interface iButton to computers and produce the derived information in desired format.

iButton is an electronic chip, which can carry digital data and can be used as stand-alone database various variant like DS1990A, which is addressed only iButton containing 64 bit ROM to iButton containing 64 K memory is available. The blue dot receptor is connected to the computer and when touched to the button can transfer the data from and into the iButton. For all iButton, iButton TMEX is the software platform on whic applications can be built.

LIMITATION OF THE MEDICAL SYSTEM: In the medical compilation system if we are using registers to maintain the details of the patient, it is very difficult to document all these records and maintain it. On one hand the preservation of paper document is difficult and on the other had retrieval of any information after sometime becomes too cumbersome, one more problem is transferring the information from one place to other. As the entry in general register is done manully, it requires lot of time and labour.

ADVANTAGE OF THE PROPOSED SYSTEM: The advantages of the proposed are given here under.

- Useful in emergency.
- Less costly for patients as every time the patient is hospitalized various common tests need not be done repeatdly.
- The patient need not carry all the reports.
- Gives mobility to the patient.
- Time and cost effective.

CONCLUSION:

Information Technology can play a vital role in health care delivery system. The computer based patient records, networking of hospitals, and other computer based health care decision tools can bring down the cost, improve the quality of service and will make it more accessible. The medical information system can be very useful for developing conuntries like India where most of the population resides at the rural area and health awareness is not up to expected level. The mobile access to the patients medical history avoids the duplication of records hence reduces the chances of error.