Health Care Recording System Using Smart Card Technology

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ABSTRACT: Because of higher performance and capacity smart cards are widely used in medical field in the moving tends. It is a portable device with the integrated circuits which has higher data storage and data processing capabilities. These cards play an important role in E-Recording system which helps in identification of personal information, storage of health regarding data and in communication of the health related records. The recording unit not only records the personal data about the patient it also used for loading the other data also. The major advantage in this system is the higher accuracy rate, providing increased concentration in heath care, cost effective, higher productivity, less time consumption. The Smart card system is currently used in the biomedical field for the measurement of the biological parameters like Blood Pressure, Pulse rate and Millets in Diabetics. This method is highly beneficial, tested and safe.

KEY WORDS: E-recording system, Smart cards technology, Higher Accuracy.

I.   INTRODUCTION

In the health care system E-recoding is the automation one in which it helps in providing the smart and effective analysis environment. Quicker analysis is one of the major advantages in smart card system. It stores the data in the source of analysis, tests records, doctor reports and the current position of the patient as well as the diagnostic analysis is also carried out. The results can also be recorded in papers but this method is not used because it has the risk of accessing, higher time consumption, lower storage capacity and maintaining the data for longer period is impossible.

The defects can be overcome by using the automation technique and intelligent storage facilities and the mechanisms of retrieval. It is a portable one that can be carried along with the patient itself for continuous Doctor's consultation. Smart cards are used in the medical field because of suitable features such as cheap, easily portable, secure, user friendly and easy updating process.

II.   SPECIFICATIONS

This system is also called as INTEGRATED ELECTRONIC HEALTH RECORD SYSTEM (IEHRS) patients carry health card along so them which help the Doctor's to access the database with the health related data. These cards are also used in wireless technologies in which the data can be stored, accessed using the mobile phones.
It includes the information's such as patient's ID, patient's name, surname, Date of Birth, Blood Group, Address, Mobile number etc., It stores the data of both the chronic and acute diseases information with the diagnostic data, dosages with the medications, allergic reactions due to the dosages. Examination and prescription can be stored in the smart cards.
The database is connected to the computer's using CARD ACCEPTANCE DEVICES (CAD) when this smart card is inserted in CAD the data are displayed in the computer. After the diagnostic processes the new prescription and the diagnostic report is updated in the smart card. Hospital administration is responsible in

maintaining and updating the new data into the card. The database information is also maintained by using the hospital administration.

III.   BLOCK DIAGRAM DESCRIPTION

It performs the operations such as pre-screening of medical reports and diagnostic device. There are four different medical data that can be measured using this device, they are
- o   Blood Pressure
- o   Blood Glucose
- o   Pulse Oximeter
- o   Clinical Analyzer

After these processes the device collects and reads data from the device latter it stores the data in the database. Visual Basic is the software that is used for storing database. The block diagram that is given below shows the overall view of the E-Recording system.
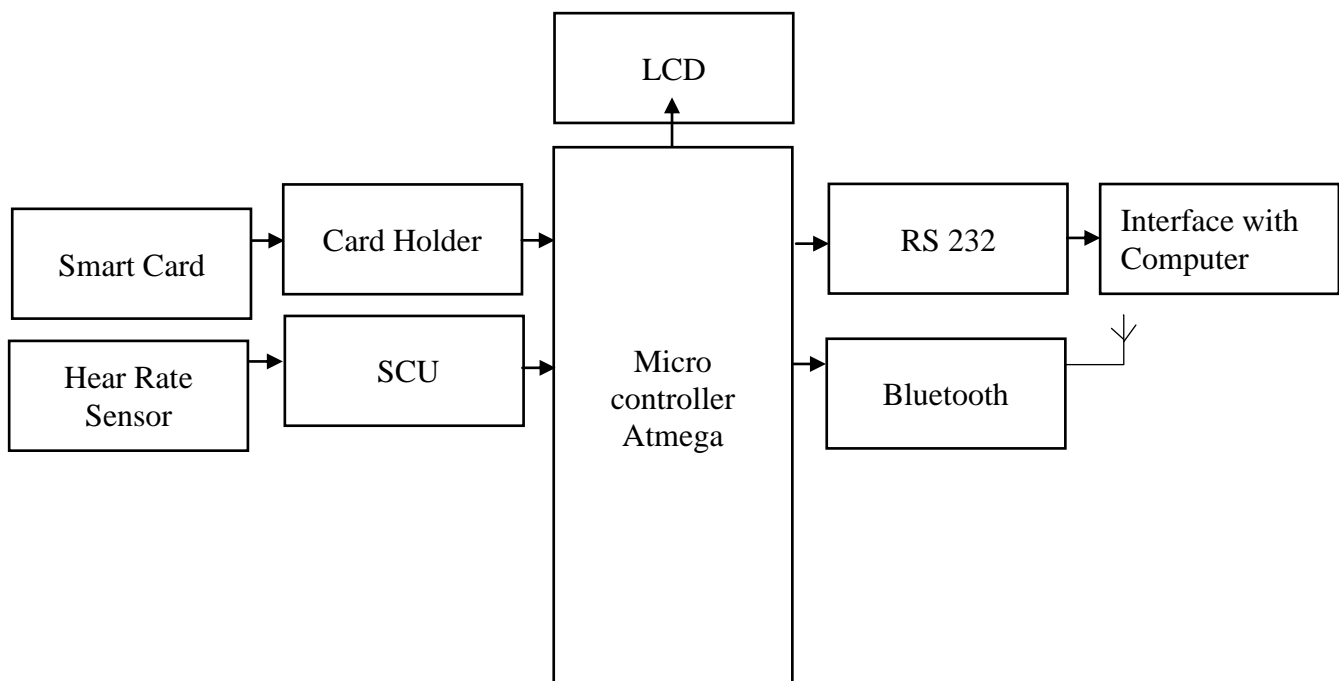

Fig 1.1: Block Diagram of Smart Card System

LCD is known as LIQUID CRYSTAL DISPLAY which is used for the purpose of displaying the results. The device is usually operated in the 16*2 that in 16 is rows and 2 is column. Now-a-days micro-controller are widely used in the biomedical field because of its higher processing speed and the capacity of storage of data. The memory capacity is high whereas it includes flash memory.
Bluetooth is used in this case whereas Wi-Fi can also be used but when compared to the Wi-Fi Bluetooth has a capacity of faster transmission of data moreover the cost of Bluetooth is less when compared to the Wi-Fi. RS 232 is the cable that is used to connect kit or the product to the computer this cable is a serial communication device because the computer is serial device.

IV.   HARDWARE

The major component that is used in the smart card technology is the HEART RATE SENSOR that senses the heart signals and sends the signal to the micro-controller which is used in the analysis of the data.
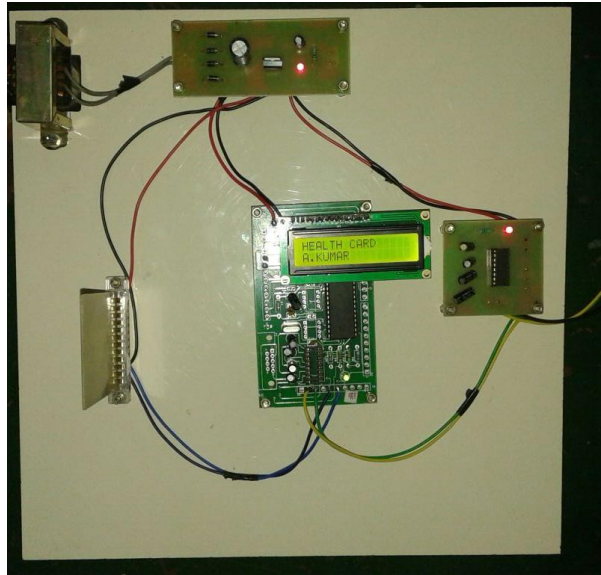
Fig 1.2: Kit diagram of Smart Card

V.   CONCLUSION

A smart card system which enables the e-prescription helps to access and store data about the diagnosis process and it helps in the easy recording of parameters such as blood pressure, clinical analyzer and heart rate. It provides the automation analysis and storage in the health care. The smart cards have advantages of flash storage that stores the data for a longer period.

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