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E-PRESCRIPTION

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Abstract— E-prescription describes an efficient technology to the healthcare professionals. It offers a low cost system in order to maintain a medical record of the particular patient. Especially it deals with the fact that how the record of particular patient is been properly maintain and using the concept of html a webpage is design in order to provide a security to the patient's medical record. It is a computer based system which offers an error free technique. For example, when a patient visits a doctor, he/she receives a medical prescription after proper diagnosis but sometimes it is observed that there is chances of error in the written script which has been received. This may create a threat consequences to the patient's life due to the wrong intake of dosages which is mention in the prescription. So to avoid this threat, handwriting gesture app is been used in this project so that the corrected input is been received. Basically e-prescription provides safe, secure and time saving system to the people.

Keywords- E-Prescription System , medical records and drugs.

I. INTRODUCTION

Electronic prescribing or e-prescribing (e-Rx) is the computer-based electronic generation, transmission and filling of a medical prescription, taking the place of paper and faxed prescriptions. E-prescribing allows a physician, pharmacist, nurse practitioner, or physician assistant to electronically transmit a new prescription or renewal authorization to a community or mail-order pharmacy. It outlines the ability to send error-free, accurate, and understandable prescriptions electronically from the healthcare provider to the pharmacy. E-prescribing is meant to reduce the risks associated with traditional prescription script writing. It is also one of the major reasons for the push for electronic medical records. By sharing medical prescription information, e-prescribing seeks to connect the patient's team of healthcare providers to facilitate knowledgeable decision making.

- ***Computer based application:***

E – prescription is a totally a computer based application which is used in order to avoid written script errors especially in a case of medical records and also provide an efficient technique to understand an medical records of a particular patient to the healthcare professionals.

- ***Transmission and reception of data electrically:***

This paper deals with the fact that whatever data regarding the patient medical history has been available in the webpage design this project and this records can be easily

available to the health care professionals .

- ***Authentication and security:***

To have an access to the medical records, healthcare professionals have to login the webpage all the time so that it provides a security and give an authentication to the available data that has been saved.

II. NEED OF E-PRESCRIPTION

- ***To Avoid Paper based prescription:***

The traditional practices which has been followed in the medical field it has been observed that all the records regarding patients age, sex , name , his medical details has been maintain in the form of written scripts by the healthcare professionals. So it create a lot of problems to handle such kind of bulk.

- ***To Avoid Threat consequences to the patients life:***

In the form of written script, there are lot of possibility of occurrence of error and this create a threat to the particular life due to the wrong reception of dosage or by following wrong instruction regarding medicine as per prescribe by the health care professionals.

- ***To Avoid Loss of data:***

In the paper based prescriptions ,the written scripts might be lost and this create permanent loss of medical records. e-prescription avoid this consequences.

III. BLOCK DIAGRAM

HOSPITALS SYSTEM:

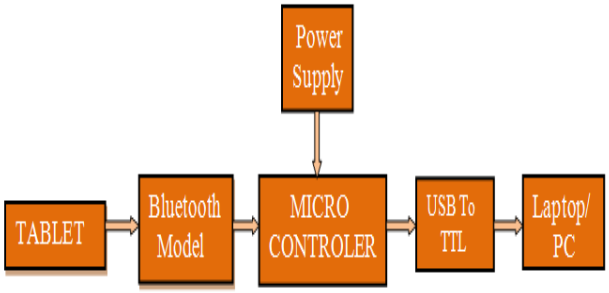

Fig : Block Diagram of hospital system

PHARMACY SYSTEM:

Fig: pharmacy system

It consists of given blocks areas follows:

- ***Tablet:***

To receive input which consist of prescribe medical details. Handwriting gesture app is been install here so that given input is receive error free.

- ***Bluetooth model:***

To transmit the received input to the microcontroller.

- ***Power supply:***

Actual power supply is from PC supply but in case if the system is not connected to pc then a particular power supply section is develop here.

- ***Microcontroller:***

Here the microcontroller is a brain of this system which control all the program regarding to project work.

- ***USB TO TTL***

To provide connectivity between microcontroller and pc/laptop

- ***Laptop/pc:***

Output is display on the webpage design using the concept of HTML. the received medical details is been display here.

IV. WORKING

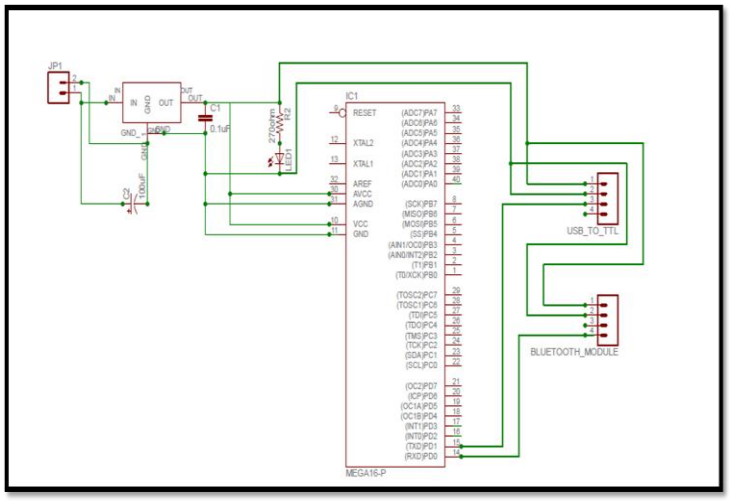

Fig: circuit diagram

The block diagram & circuit diagram is as shown in fig. It consists of two section transmitter side & the receiver side. At transmitter side, various blocks are their such as Tablet, Bluetooth module, microcontroller, USB To TTL, laptop & printer. The main function of E-prescription is conversion of the medical data of a patient into the PDF format with an error detection & correction technique. So, firstly the input is given to the tablet which is a computer display screen that is also an input device, this screen are very sensitive to the pressure. This output from the tablet is given to the microcontroller where the software Atmega studio6.0 is used, which is responsible for conversion of C language program into the Hex file. This hex file is transfer to the laptop through the wired connection that is USB To TTL.This Hex file is converted PDF file & then transfer to the pharmacy via. Bluetooth

module.

V. HARDWARE DETAILS

- ***Microcontroller:***

Microcontroller can be termed as a single on chip computer. ATmega16 is an 8-bit high performance microcontroller of Atmel's Mega AVR family with low power consumption. Atmega16 is based on enhanced RISC (Reduced Instruction Set Computing, Know more about RISC and CISC Architecture) architecture with 131 powerful instructions. Most of the instructions execute in one machine cycle. Atmega16 can work on a maximum frequency of 16MHz.

Pin Diagram:

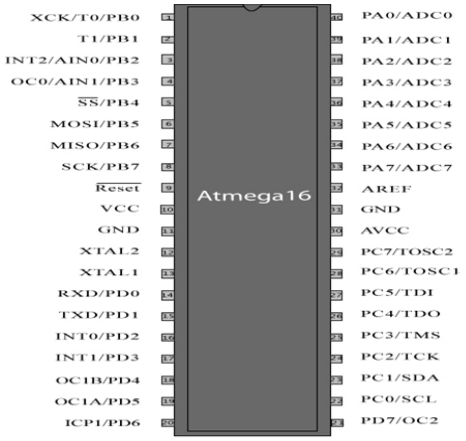

Fig: Pin Diagram of Atmega 16 Microcontroller

ATmega16 has 16 KB programmable flash memory, static RAM of 1 KB and EEPROM of 512 Bytes. The endurance cycle of flash memory and EEPROM is 10,000 and 100,000, respectively.
ATmega16 is a 40 pin microcontroller. There are 32 I/O (input/output) lines which are divided into four 8-bit ports designated as PORTA, PORTB, PORTC and PORTD.
ATmega16 has various in-built peripherals like USART, ADC, Analog Comparator, SPI, JTAG etc. Each I/O pin has an alternative task related to in-built peripherals. The following table shows the pin description of ATmega16

- **Voltage Regulator (7805):**

7805is a voltage regulator integrated circuit. It is a member of 78xx series of fixed linear voltage regulator ICs. The voltage source in a circuit may have fluctuations and would not give the fixed voltage output. The voltage regulator IC maintains the output voltage at a constant value. The xx in 78xx indicates the fixed output voltage it is designed to provide. 7805 provides +5V regulated power supply. Capacitors of suitable values can be connected at input and output pins depending upon the respective voltage levels.

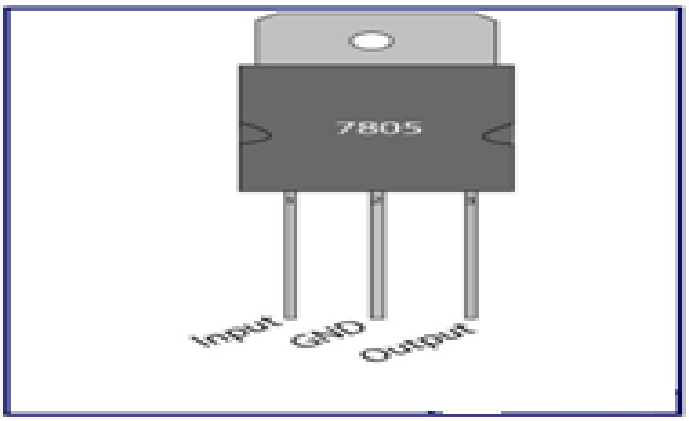

Fig: pin diagram of 7805

- ***Bluetooth:***

Bluetooth can be simply define as "It is a wireless technology standard for exchanging the data over a short distance.

VI. SOFTWARE DETAILS

- ***Atmel Studio: Release 6.0***

Atmel Studio is the new integrated development environment from Atmel. It provides you a modern and powerful environment for doing AVR and ARM development. Get started by exploring the included example projects. Run your solution on a starter or evaluation kit. Program and debug your project with the included simulator, or use one of the powerful on-chip debugging and programming tools from Atmel. Get productive with the various navigate, refactor and intellisense features in the included editor. Experience seamless integration with various Atmel WEB services like Atmel Video Lounge, Atmel Store and datasheets to keep you updated and help you to design your solutions. With strong extension possibilities and online gallery, it is possible for both designers and 3rd party to provide plug-ins and customize the environment for best use and productivity.
Atmel Studio carries and integrates the GCC tool chain for both AVR and ARM, Atmel Software framework, AVR assembler and simulator. All newest Atmel tools are supported including AVR ONE!, JTAGICE mkII, JTAGICE3, STK500, STK600, QT600, AVRISP mkII, AVR Dragon and SAM-ICE.

- ***Sinaprog 3.0***

Sinaprog is a Hex downloader application with AVR and Fuse Bit Calculator. This is used to download code/program and to set fuse bits of all AVR based microcontrollers.

Fig. sinaprog 3.0

- ***HTML :***

What is HTML?

HTML is a standard markup language, which is used for creating a web page. The HTML stands for hyper text markup language and it describe the structure of web page by using this markup. The element of HTML is the building block of the HTML page.

VII. PCB LAYOUT DESIGN

The first stage in the development of a PCB design is to capture the schematic for the circuit. This may be achieved in variety of way. Circuit may be entered into a schematic capture tool this may from part of the PCB design suite, or it may be an external package whose output can be expanded in a suitable format

In addition to purely performing the schematic capture, simulations of the circuit may be undertaken at this stage. Some packages may be able to interphone to simulation packages for applications such as RF circuit design simulations of the circuit will enable the final circuit to be optimise more without building a prototype.

With the schematic capture complete the electronic design of the circuit is contain within the file and can be converted to what is term a" net list". The net list is the interconnectivity information and it essentially the component pins and the circuit nodes, or nets, to which each pin connect.

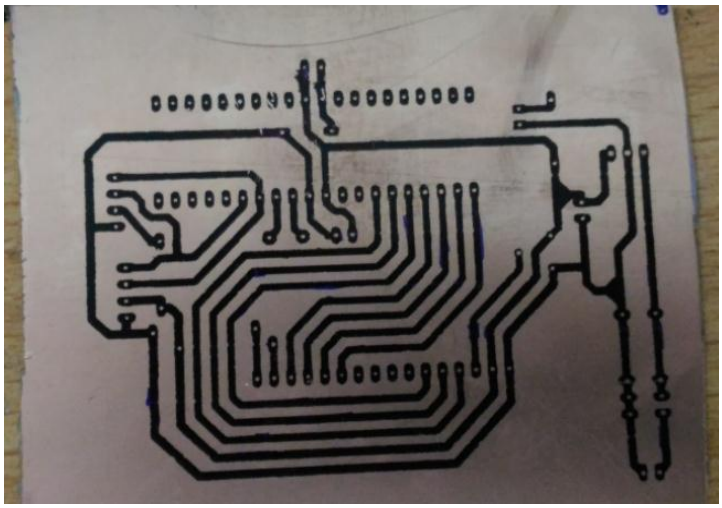

Fig: PCB Layout

VIII. ADVENTAGES AND APPLICATION

ADVENTAGES:

- Prevents prescription drug errors

Paper based prescription most often offer written script errors by handwriting illegibility this can be overcome by this e-prescription technique .

- Privacy and Security

The whole setup with the implementation and
combination of handwriting gesture app and web designing part leads to the efficient management technique.

- Error detection & correction

An objective of offering an error free technique has been achieve here by handwriting gesture app application which helps to avoid any drug allergy reaction that could lead to adverse drug events.

- Patient registration

An efficient web designed part of this project offer an authentication to the particular patients medical records with her/his access .

- Save time

Writing a prescription electronically takes only seconds compares to traditional ways of writing script . With this time saving , a healthcare professional can spend more time with patients discussing his/her medical term.

APPLICATION:

- Clinics
- Hospital
- Pharmacy

IX. FUTURE SCOPE

By cloud based system global e-prescription market has been created, This global E-prescription market involves the transmission of prescription from doctors and physicians to pharmacists through electronic means, including computers and various mobile devices such as tablets and smart phones. The global e-prescription market is rapidly replacing the conventional methods of prescription transmission through paper, phone, and fax. Generation of the android apps with proper authentication to the user is provided on the various electronics devices, which provide an medical record. In future patient record link with Adhar card so any one doctor easily monitor past record of patient.

X. CONCLUSION

There is a huge amount of population, which are suffering from medical error. Which ultimately cause improper reception of prescription. So, there is need to have the magnitude healthcare system to avoid the loss of life and to handle the huge amount of crowd with very easy manageable technology, such as electronic prescription. The main function is to focus the basic functionality is to capable enough to utilize and accessing over a broad range of information system. Which provide the source system to analysis, monitor and have a record of the patient's.

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