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BIOMETRIC BASED MEDICAL RECORD SYSTEM

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Abstract - *Medical records implicit all information connected with medical care of the patient and it is the most crucial information in terms of isolation of patient. Now a days policies and technology are rapidly moving towards the security of patients. This project applies fingerprint identification technique to medical records system. This is very secure process for keeping records. Just by recognising fingerprint we can obtain the information related with that patient. It is very convenient process of keeping records. Biometric responds rapidly, commonly identifying a patient in only one seconds. Just by recognizing fingerprint reality that biometric credentials are unique for each patient and cannot be forgot or copied. This technology will help to accurately track a patient time.*

Keywords: *Biometric, fingerprint, recognization*

1. INTRODUCTION

Medical records implicit all information connected with medical care of the patient and it is the most crucial information in terms of isolation of patient. Now a days policies and technology are rapidly moving towards the security of patients. This project applies fingerprint identification technique to medical records system. This is very secure process for keeping records. Just by recognising fingerprint we can obtain the information related with that patient. It is very convenient process of keeping records. Biometric responds rapidly, commonly identifying a patient in only one seconds. Just by recognizing fingerprint reality that biometric credentials are unique for each patient and cannot be forgot or copied. This technology will help to accurately track a patient time.

All the users that is, the patients in the whole networks services elaborate for the duration of the project. The new information system that will result patients medic al records to be shared electronically with doctors hospitals and nursing home. There are many more disadvantages in patient record system if we use barcode system, ID card etc. They are follows:

- Not used during emergency condition
- Need for the patient to carry ID cards
- Possibility of identify fraud
- Chances of medical records errors

The hospitals are bind in keeping patient security while circulating records to upgrade recognition and nursing of patients by adding the technique of biometric based medical records. As we know fingerprints cannot be forgotten as password. The fingerprint have the probability to give high privacy and more beneficial for user confirmation we cannot copy the fingerprint like password so that fingerprint identification is the most beneficial method while keeping high security.

The advantages of this system as compared to other systems are:

- It uses low power
- It gives security in the hospital
- Addition of new patient user is possible
- We can use this system when patient is senseless
- Chances of error can be reduced

The efficient use of the biometric based medical system is the simple and rapid data accepts facility leads to execute the widespread in the security system, The system uses secured and verified data transformation between patients and database servers. This allows doctors to give better treatment and medical decision for their patient, which results in good quality of care and avoid unnecessary testing. Our main Aim is to create secure solution that permits doctor to more efficiently use patient records.

A fingerprint in its small sense is an imitation left by the rubbing ridges of a human finger. Fingerprints are the marks of an impression from the rubbed ridges of any part of a human hand. A footprint also leave an marks of friction ridges.

2. MATERIALS

2.1 Crystal oscillator

Crystal oscillators is an electronic circuit use to create electrical signal with exact frequency. This frequency is frequently used to maintain track of time.it work on the property called electrostriction. This oscillator uses its frequency determining elements such as piezoelectric resonator , a crystal. Natural Frequency of each crystal like pendulum. This frequency is continuously employed to monitor time. Crystal oscillators are the fundamental parts of an electronic device. The range of quality factor is high it has low cost as well as small size. Crystal oscillator used in lot of consumer goods for example cable television system, personal computer, cellular phones, video camera. Working principle of crystal oscillator is piezoelectricity, resonance. It is invented by Alexandar M. Nicholson, Walter Guyton cady. A crystal is a solid in which the part of atoms, ions or molecules are packed in a particular order. Object which is made up of elastic material can be used as crystal. Since all object have natural frequencies .

2.2 Buzzer

Buzzer is a signaling device which is mostly used in household appliances such as oven, as well as in automobiles. It generally consist of a many more switches or sensors which are connected to a control unit that identifies if and which button was pushed or a predetermine time has expired, and usually light up on the particular button or control panel, and sounds a alerting in the way such as beeping sound.

Now a days, we can see use of ceramic based piezoelectric sounder is very popular which create a high pitched tone. Usually these were curved up to “driver” circuits which varied the tone of the sounds and throb the sounds on and off.

The circuit is designed to control alarm. ON and OFF of buzzer is controlled by the pair of switching transistor (BC 547). One terminal of buzzer is connected to the another terminal of Q2 transistor collector. When high vibrating signal is given to base of the Q1 transistors, the transistor is conducting and terminate the collector and emitter terminal due to this zero signal is given to the base of Q2 transistor. Because of this buzzer and Q2 transistor is turned off state. When low vibrating signal is given to base of the Q1 transistors, transistor is turned off. Now supply voltage of 12V is given to the base of Q2 transistor then transistor is conducting and buzzer is active and produces the sound signal.

2.3 LCD Display

The property of both liquids and crystals combine to form liquid crystal displays. Instead of having melting point they have a specific temperature range within which the molecules are mobile as they would be in a liquid, they grouped together in an ordered form similar to crystals .

LCD consist of two glass panels, where liquid crystal material sand witched in between them. Glass plates have a inner surface which is coated with a transparent electrode. In between electrodes and crystal layer there is a presence of polymeric layer. When LCD is in off state then two polarizes and liquid crystal rotate the light rays, such that the light rays emerge out of the LCD without any inclination, and hence the LCD appear transparent. When voltage is given to the electrode, the liquid crystal molecules would be arrange in a specific direction. The LCD’S are light in weight which has few millimeters thickness. It has low power consumption, they are compatible with low power electronic circuits, and can be light for long duration.

2.4 Fingerprint module

Fingerprint module is an electronic device used to capture a image of fingerprint pattern. The captured image called as live scan. After processing this live scan use to create biometric template which is used for matching. Fingerprint module has two basic job- it is necessary to get the image of finger, and it is necessary to find whether the pattern of ridges is matching or not in pre-scanned images.

The most common methods which are used are optical scanning and capacitances scanning. The heart of optical scanner is a charge coupled device(CCD). A CCD is simply an array of photosite.

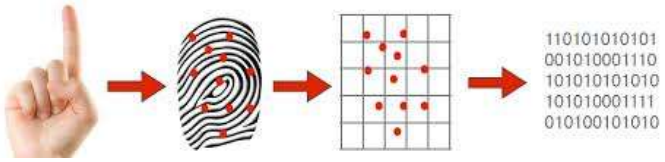

Figure 1-Working of fingerprint sensor

1.5 Microcontroller

The AVR 8-bit microcontroller architecture was introduced in 1997. By 2003, Atmel had delivered 500 million AVR flash microcontrollers.[8]The Arduino platform, developed for simple electronics projects, was invented in 2005 and featured atmega8 AVR microcontrollers.

Microcontroller is a general purpose device which combine a number of components of a microprocessor system on to single chip. It has inbuilt memory, CPU and peripherals to make it as mini computers.it is smaller in size and less power consumption as well as cheaper. A microcontroller combines on to same microchip:

- The CPU core
- Memory
- Some parallel digit i/o Microcontroller will combine other device such as-
- A timer module to allow the microcontroller to perform tasks for sure time period
- An ADC to allow the microcontroller to accept analogue input data for processing.

Results and discussion-

The patient database representing the medical record system is created. The created database contains following parameters

- Patients personal information
- Age and gender
- Blood group
- Type of disease
- Symptom
- Results of test done
- Doctors comment
- Medical prescribed

Advantages of using this medical records system are:

- We can use database during emergency condition
- High security of using fingerprint
- More convenient for user identification
- Medical records error can be reduced

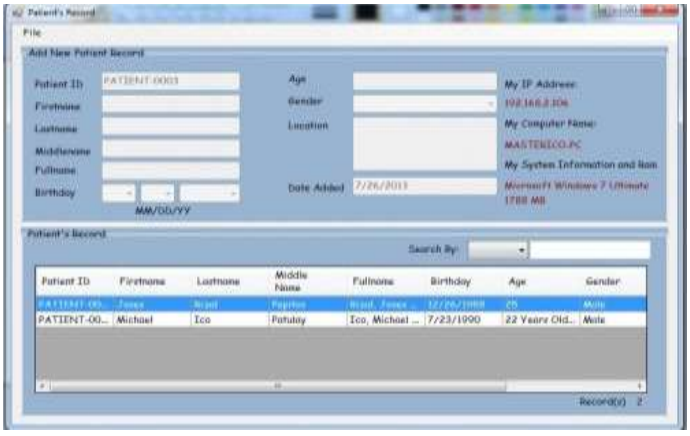

Figure2- patient database

3 .Conclusion and future scope

In this project, fingerprint confirmation is considered to protect medical records transmitted and to guarantee confidentiality of the data. Patient data can be stored and get back by connecting to the hospital database and thus it can be gain globally. The main benefit of this project is online gain of the patient database.one of the most important application is that it can be used during emergency condition. There is no need to carry the ID card such that there is no chances of losing them. Patients record error can be minimize using biometric technique. Fingerprints are unforgotten. Fingerprint have the potential to offer high security and more comfortable foe user identification. The fingerprints are significantly more critical to copy and distribute like password this male the fingerprints identification system a very convenient and secure. If patient has lost his memory during this condition we can use this system such as by recognizing fingerprint we can get his whole information related with medical records. Our main goal is to create a sustainable, convenient and secure solution that allows the doctors to more effectively use patient data to improve overall health, quality and efficiency of care.

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