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BIOMETRIC BASED MEDICAL RECORD SYSTEM

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ABSTRACT: *Medical record implicit all information connected with medical care of the patient and is the important information in terms of isolation of patients. Now a days policies and technology are rapidly moving towards the security of the patient. This project applies fingerprint identification technique to medical record system. This process is very secure for keeping records. Just by recognising fingerprint we can get a information related to the patient. It is very easy of keeping records. Biometric responds rapidly, commonly identifying the patient only in one second. By recognising fringerprint reality that biometric credientials are unique for each patient and cannot be forgot or copied. This technology will help to track a patient time.*

***Keywords: Biometric, fingerprint, recognization*.**

1. INTRODUCTION:

Medical records gives all the information connected to the medical treatment of the patient and it is most important information in terms of isolation of the patient. This project gives information about the fingerprint identification technique to the medical record system. This process is secure. All the users that is, the patients in the whole world network services elaborate for the duration of the project. The new information of the system is that it gives the results of the patients medical records by sharing their electronically with the doctors and nurses.Their are disadvantages of the patient records, i.e., if we use ID card, barcode. They are as follows:

- Patient need to carry ID cards.
- Cannot be useful during emergency condition.
- Possibility of being fraud.
- Changes of errors.

The hospitals can keep patient security by circulating records to upgrade recognization and nursing of patients by technique of biometric base medicals records. We know that fingerprint cannot be forgotten as the passwords. The fingerprint gives the high probability of privacy and is more beneficial to the user confirmation.

In biometric medical record system we cannot copy the fingerprint like password. Due to this fingerprint identification is benificial method for high security.

The advantages of biometric system is as follows:

- Addition of new patient is possible.
- Errors can be reduced.
- We can use this system when patient is senseless.
- Gives security to hospital.
- Uses low power.

The main use of biometric based medical record system is that it is simple and accepts data rapidly which leads to excute the wide spread on the security system. The system uses verified transformation of the data between the doctors and patients and database servers. This method becomes easy for the doctors to give the better treatment to the patients which results in the good quality of care and treatment and avoid unnecessary testing. The main aim of the system is that to create secure solutions that permits doctors more effieciently to use patients records.

The fingerprint module is the small sensor is an imitation left by rubbing human fingers. Fingerprints are impression of the marks from the rubbed ridges of any part of the human body. A footprint also leave a marks of friction ridges.

2. MATERIALS:

2.1 Arduino UN0:- It is a microcontroller board based on the ATmega328. The Arduino UNO differs from all the preceding boards because it does not use the FTDI USB-to- serial driver chip. Instead, it features the ATmega8U2 program as a USB- to-serial convertor. It is an open-source microcontroller board based on the microchip ATmega328P.

2.2 LCD Display:- LCD stands for 'Liquid Crystal Display' screen is an electronic display module and it find a wide range of applications. These module are preferred over seven segments and other multi segments LEDs. In the LCD each character is displayed in 5x7 pixel matrix. This LCD has two registers, command and data

2.3 Fingerprint Module

It is a fingerprint scanner is a type of technology that identifies and authenticates the fingerprints. It can be store for user to identify the fingerprint. The fingerprint module is a unique way to identify a person. The fingerprint processing includes two parts: fingerprint enrolment and fingerprint matching (the matching can be 1:1 or 1:N). When enrolling, user needs to enter finger two times. It matches, the user enters the fingers through an optical sensors and system will generate a template of the finger and compare it with templates of the finger library.

2.4Microcontroller:-

It is an ATmega328 is a very popular microcontroller chip produced by Atmel. It is an 8 bit microcontroller that has 32k of flash memory, 1k of EEPROM, and 2k internal SRAM. The ATmega328 is the upgraded more advance chip. It is a small computer on a single metal-oxide-semiconductor integrated circuit chip. In modern technology, it is similar to, but less sophisticated than, a system on a chip.

3. WORKING:- The hospital was designed using unified modeling language(UMI). It consist of activity diagram and class diagrams. In figure shows the activity diagram. It shows the process flow of users registrations system access by consulation patient treatment and drug administration. Firstly, patient has to be register and receptionist will check for doctor's availability. Then patient consult available to doctor and room are allocate to the patient if patient is recommended for admission. Continuous medication is given to the patient and is discharged if doctor allow. A deployment diagram was also made by four objects. They are desktop client, hospital local server, printer and database server. The desktop client server as user interface by which patient, doctor and administrators interacts with the system. The hospital local server provides application services, the different module that make up the software and also storage of the medical data. In figure 2 the form is used to authenticate adminstators to enroll users into the system. The users are accept to placed their right thumb on fingerprint module or fingerprint scanning machine. It consist of five diagram objects they are enroll, patient Info, assigned, Inpatient and Ptreatment the non-staff and nurse go through enrolment process. Each doctor also get enroll with the system. One patient can be able to admit on patient and can also treat one patient. One nurse can give medication to one patient at a time.

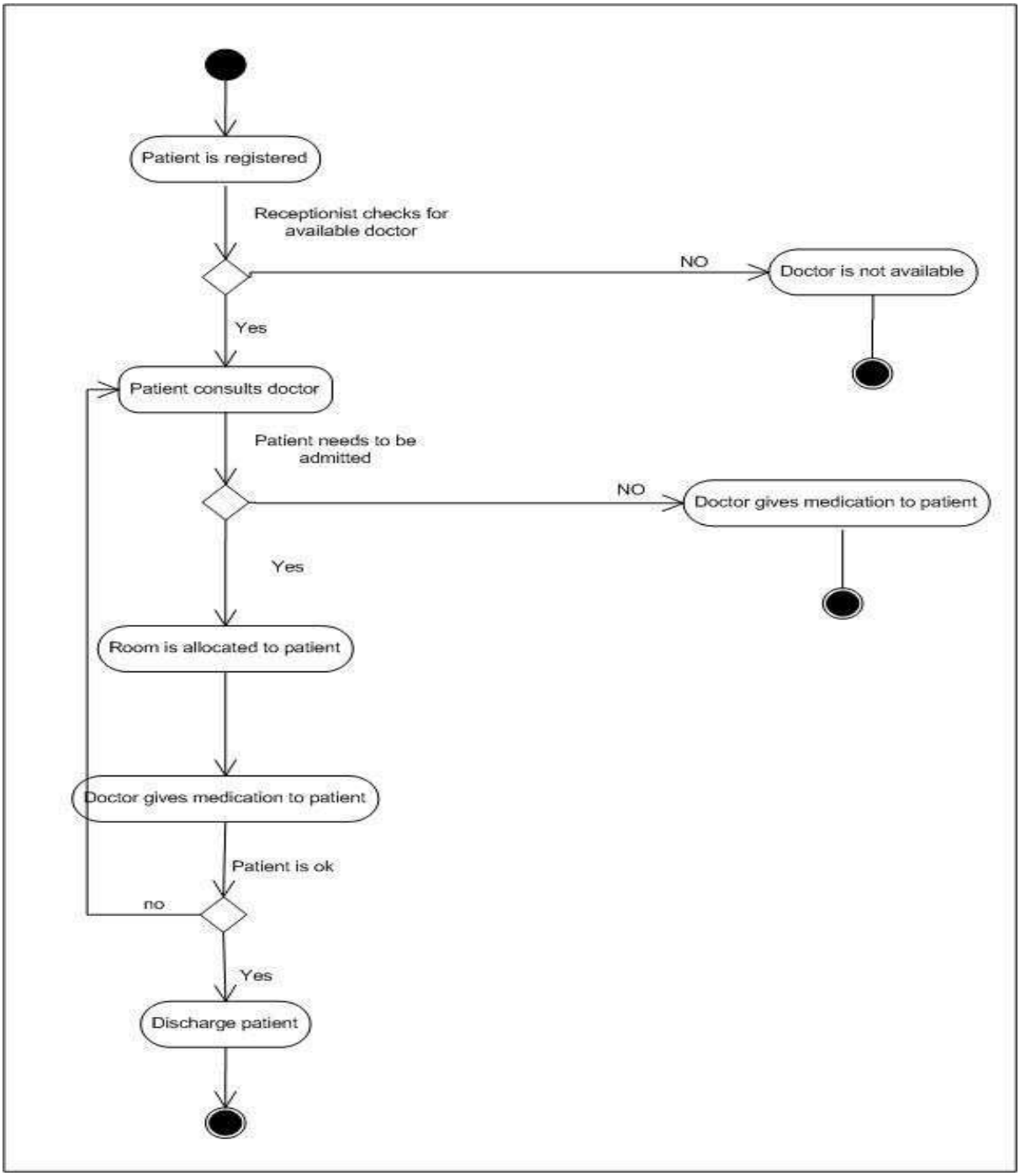

Fig 1- The activity diagram of hospital.

Fig 2- Admin login form to enroll user.

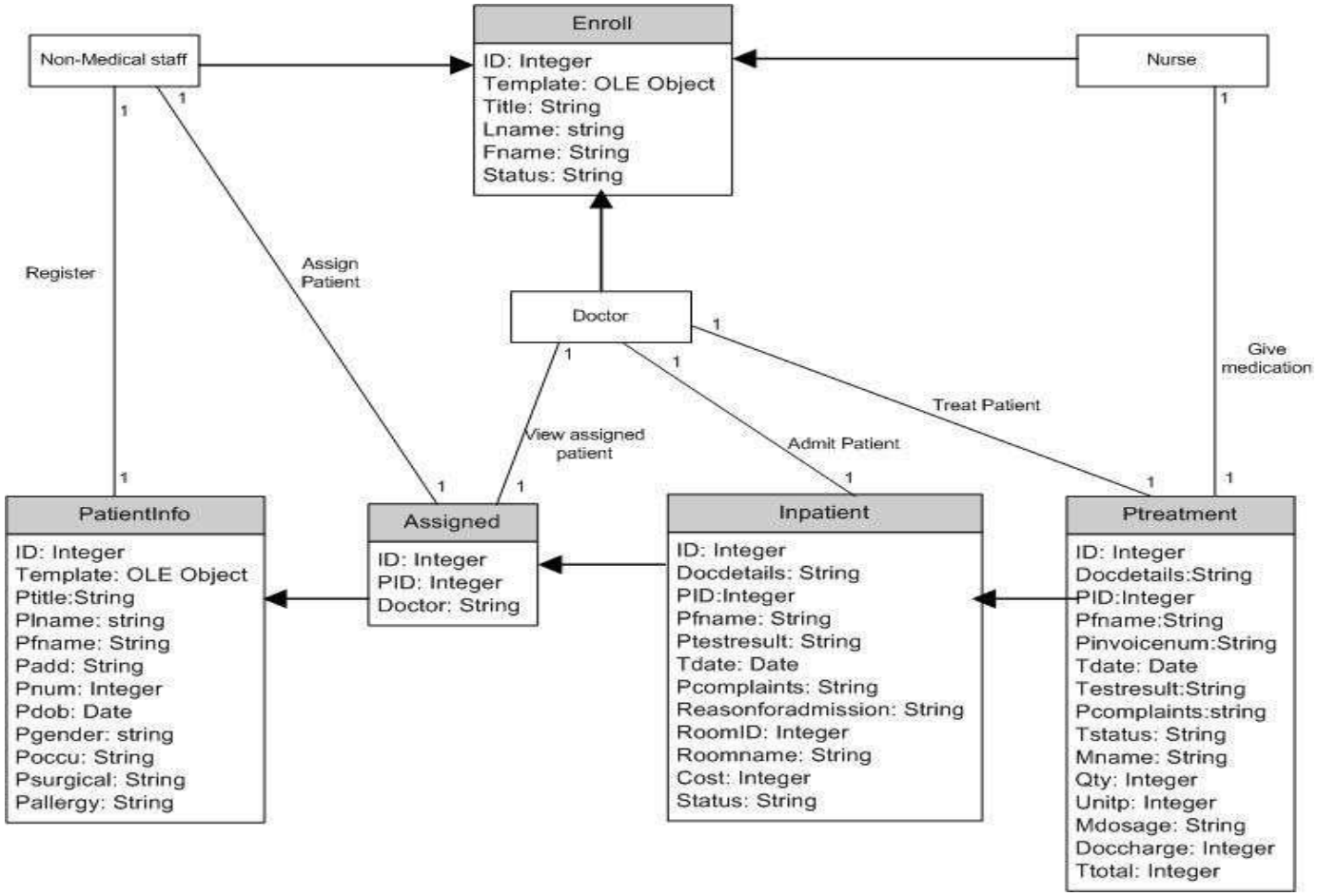

Fig3- The class diagram for hospital.

The hospital was implemented with visual Basic.Net for front end and Microsoft access as database. The system has four modules –

1. **Administrator:-** This module handles all changes that are made in database and enrollment of users .Each user enroll in this module get advantage that they can change their status.
2. **Registration:-** This module handles registration of the patient in the reception or assignment of patients to available doctor.
3. **Doctor:-** This allows to give medication to patients admit patients.
4. **Nurse:-** This allows nurse to give medication give to the patient.

Some of the system screenshots seen in fig 4 -7.

Fig 4 – shows the home page of hospital system. The page involves doctor, patient and tools. Fig 5 shows the enrolment of patient.

The biodata is captured by fingerprint machine. The biodata includes the title, cast name first name and job status. The user has the option to click on enrol user button or cancel entering.

Fig 4 – The hospital system home page.

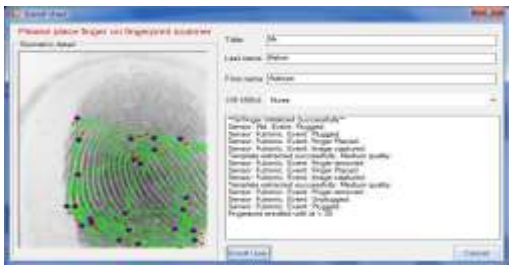

Fig 5 – The enrol user form.

Fig 6 – shows that it performs the role of assigning patient to doctor.
The verified patient screen(see fig 7) shows it is used by doctors to verify patient and ensure that
Patient is who he/she claims to be.

Fig. 6. Assign patient to doctor form.

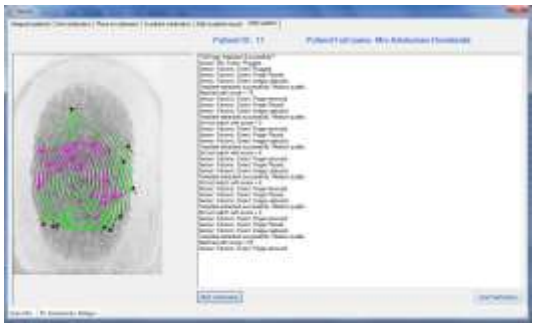

Fig 7- verify patient

Fig 8 -It is used by non-medical staff to register/enrol user into system.

Fig 9- It is used by the doctor to identify administration after authentication before the system asks him or her to enroll.

Fig. 8: The registered patient form.

Fig. 9. The admin identified form

4. Conclusion and future scope:- In our project fingerprint verification is considered to protect the medical information transmitted and to guarantee both the integrity and the confidentially of the data. Patient data is stored and retrieved by connecting to the hospital database, and thus it can be accessed globally . The main advantages of this project is online accessibility of patient database. Patient information security is safe and secure in biometric fingerprint. It has none of the disadvantages of the traditional password based authentication and is unique for every individual.

5. References:-

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