

RFID Health Band

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ABSTRACT:RFID is a wireless technic that works on radio frequency.It delivers data from an electronic tag attach to a thing by a reader help of radio waves.This project uses RFID technology to know the medical history of the patient. Where RFID health band (RFID tag) is providing to the patients by the respective hospitals. This band is mainly helpful to the old age, mentally and physically disabled people. For ex: when a person faints on a road, and an ambulance comes to take that person. At this time the RFID health band with the patient helps the staff to get to know the patient's medical status, like blood group, in which hospital that person has been treated earlier, from which disease that person has suffered, etc. By knowing the patient's medical position, he can be treated directly.

Initially we need to interface RFID reader with the arduino. We need to write an arduino code in such a way that when we carry a RFID band near to the reader, it's unique ID will be displayed on the screen. We need to store the information about the patient under this unique ID in the database. Then we want to write a python code in such a way that when patients RFID health band is took near to the reader the information which is connected with the unique ID of that tag will be shown on the screen.

Index Terms- RFID Reader, Unique ID, Health care, patient safety, database, RFID technology, Radio Frequency.

1. INTRODUCTION

The recent rise in the focus on the safety of the patient has produced a plenty of new technologies and tools looking for to improve the quality of patient care. Hospitals are complex institutions, and are constantly challenged to improve the quality of healthcare brought to patients. RFID is a wireless technology that works on radio frequency. The technology has been effectively implemented in many areas, such as manufacturing, agriculture and transportation, but its major sector is healthcare. Absence of information and access, patient tracking, efficiency in patient care, long waits at hospitals, medication faults are also some of the major industry concerns. RFID offers a different answers to these problems by sudden recognizing and chasing the tags attached to the matters.





This project uses RFID technology to know the medical history of the patient. Where RFID health wrist band is provided to the patients by the particular hospitals. This band is mainly supportive to the old age, mentally and physically disabled people. For ex: when a person unconsciousness on a road, and an ambulance comes to



take that person. At this time the RFID health band with the patient helps the staff to get to know the patient's medical status, like blood group, in which hospital that person has been treated earlier, from which disease that person has suffered, etc. By knowing the patient's medical status, he can be treated immediately.

2. PRIOR ART SEARCH

Prior art search includes read-through different databases to make out whether someone else has already defined an idea or a product which is like to our work. The amount of hard work exhausted in acting a prior art search can be related to the value of the creation and following patent, if the application is indicted to achievement. Without the prior art search, we will be working in an info space and it is not be able to form an educated estimation about whether we can patent our discovery. It is like a painful exercise that can refine the risk of rejection of the patent application.

2.1 Patient identification systems

Eugene lutton, Barian regan and Geoff skinner from the department of information science engineering has proposed the patient identification.

Healthcare firms should have the skill to answer to rapidly changing situations. The raising care to the safety of the patient and access to the efficient health care facilities has bought about the acceptance of new identification and sensor network technologies. These technologies are being fixed to information systems that helps to clarify the complex nature of hospital surroundings.

This paper deals with the research work that is conducted in the order to avoid unexpected medical accidents in a hospital. It aims in collecting the patient details including his/her diseases and required medication in the form of barcode. If we just scan the barcode we can get to know each and every detail of the patient. This way we can avoid confusion and provide proper treatment. This research work is much more applicable to our project as we are converting the patient details or data in the clouds for the purpose of using the health band.

3. HARDWARE IMPLEMENTATION 3.1 WORKING

Before supplying the RFID wrist band to the patient, the particular hospital staff reads the band using the RFID reader to get band's unique ID. After obtaining the unique ID, staff will create the patient database with respect to the unique ID, which contains the details of that patient, such as full name, age, blood group, blood pressure, etc. If the patient arrives next time to the same or to other hospital in case of any emergency situation then the centralized server shares the records. At the end of the process data will be updated in the database.

3.2 HARDWARE IMPLEMENTATION

This hardware setup is implemented at the hospital. The machinery that is used here is RFID Reader, through which we can obtain the unique ID of the wrist band, when it is scanned. A RFID band, which will be given to the patient.

3.3 EMBEDDED SYSTEM

The working model which is used to obtain the unique ID is shown as follows with the USB port connected to the server computer:



Fig 3.1 Setup

When the RFID wrist band is brought close to the reader, the reader reads the unique ID and the data is entered and stored in the database. And during emergency situations we can regain the records directly from the database.



4. SOFTWARE IMPLEMENTATION

4.1 Front-End

Front-end is the element of a website that the user cooperates openly. Basically, front-end is the custom of converting information into a graphical interface. It contains all that the users experience straight, such as text font, colours, images, graphs and tables, buttons, and routing menu. The structure, design, behaviour and content of everything seen on the browser are shown when websites, web applications, or mobile apps are unlocked up, is implemented by the developers. Awareness and presentation are the dual important principles of the frontend. The programmer should guarantee that the site is lithe i.e. it should appear properly on the systems of all sizes, any element of the site should not perform abnormal regardless of the magnitude and shape of the screen. In this form we have three buttons, first one is for registration form, second button is for retrieving function and the last button is for exiting.





4.2 Registration form

A registration form is a list of fields where the client will enter the details and submit to a company or individual. Most of the companies use this forms to sign up patrons for subscriptions, services, or other programs or plans. This form has the details of the patients that they need to fill up.

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Patient Details		-		\times			
Patient Details							
Unique ID							
Eulloame		-					
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Age							
blood_group							
Blood_Pressure							
	Submit						

Fig 4.2 Registration form

4.3 Retrieve

Here we retrieve the data from the database of our necessity. Select statements are used to gain the data from SQL tables. An asterisk symbol after the word "select" means retrieve all data from the field. The name of the table from which we are retrieving data is specified in the from clause. The end of a SQL statement is signified by a semicolon. The name of the table from which you are retrieving data is specified in the from clause. In order to obtain the details from one or more tables from the SQL database, SQL SELECT command is used. The first line of the statement tells the SQL processor that this command is a SELECT statement and that we longing to recover data from a database. The type of data that we desire to recover is specified by the select list. The second line, FORM section determines the particular database table(s) concerned and the WHERE section gives us the potential to bound the result to those data that assemble the specified condition.

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Fig 4.3 Retrieve form



4. CONCLUSION

When RFID band comes close to the RFID reader module, it collects the unique ID from the RFID band and displays that unique number of the RFID band on the serial monitor.

We have created the patient details form through Pycharm software where the form has three options. First option is for registration form where we have created a form to enter the patient information like unique ID, full name, their age, blood pressure, etc by the hospital staff. We have created a database in SQLite software so that after registration, the details of the patient gets stored in the database.

Second option is to retrieve the records from the database. When we enter the unique ID of the band we get all the medical details related to the patient. Third option is to exit from the from the entire process. We can also update the data of the patient whenever required, directly in the database.

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