

INFANT SECURITY SYSTEM

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Abstract: Infant kidnapping has become a frequent case nowadays in hospitals. The security system in government hospitals regarding protection to Infants is unsecured. Day by day the theft of Infants in hospitals has been increasing, so in order to provide security to infants in hospitals, we introduce INFANT SECURITY SYSTEM

The Security system is based on RFID Communication Protocol. This System is done using active RFID tag interfaced with receiver and ARDUINO UNO. RFID tag transmits signal data to receiver and using the data, controller displays the status of the baby in the website, and is monitored by security officials in the hospital, which Provides security to Infants 24*7

Keywords: ARDUINO UNO, LCD, Active RFID Tag, RFID Receiver, IOT Module.

I INTRODUCTION

The birth of a new baby is a joyous occasion, and will be a excitement among the family members. However, it is responsible to know about the unfortunate risk of infant abduction (kidnapping) from hospitals. Hospitals are perceived as institutions of tradition that historically resisted becoming victims of insecurity whereby more efforts have been put on offering services based on open and friendly access to the public. This has been practiced for decades implying that hospitals should be open 24 hours a day and seven days a week whereby people of any type walk in and out without being stopped. This is attributed to their designated nature of being open and accessible to the public which is likely to favor entry of perpetrators of crimes and other dangers to the hospital if not properly protected especially for Infants. Child kidnapping has become a common case now a days all over the world especially in hospitals. It happens due to the security concerns for Infants in Hospital. This paper provides a best possible way to prevent Infants from abduction in hospitals

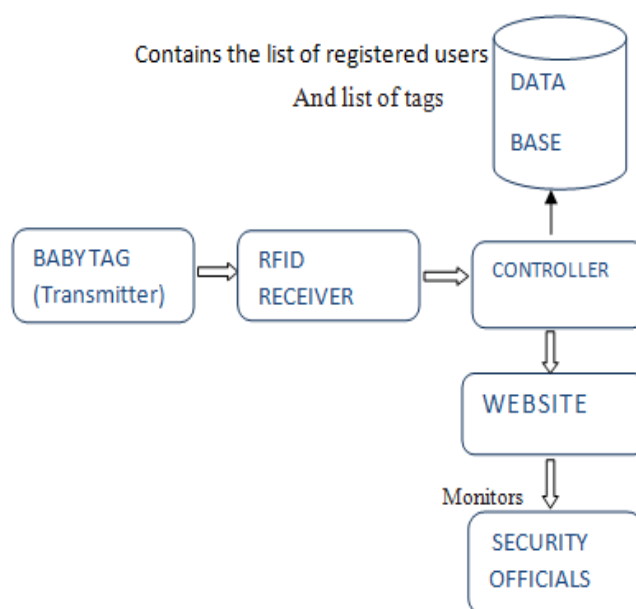


Figure 1-System Architecture

II EXISTING SYSTEM

Traditional security methods including the use of local tools like sticks and bows may not offer standard protection to the hospitals. Hospitals may experience complex risks like infant abduction. Infants are more vulnerable due to the fact that they are helpless and are not self- protective, so they can easily be carried away by strangers without anyone noticing that something is amiss. Hospital security departments and staff are usually challenged to offer a safe environment for

employees, patients, and visitors. Currently, to keep the patients, staffs and visitors safe hospitals use wide range of security by the use of CCTV cameras and Security alarm system in case of emergencies, also for some patients the hospital management may provide additional security by providing a separate security staff for the patients.

If any unwanted incidents, theft of Infants takes place in hospitals the only way to identify the truth is through the CCTV cameras, even though cameras are placed in hospitals the number of theft of Infants in hospitals is not reducing. There is no proper efficient security measure to control the infant kidnapping in hospitals. The rate of Infant abductions are increasing constantly in hospitals.

III DRAWBACKS

- Real time monitoring of baby is not essential
- Use of CCTV cameras may not be able to prevent the thefts, helpful only after they know about the thefts

IV PROPOSED SYSTEM

The Solution will be based on RFID communication protocol. Every Infant who is born in hospital is allocated with a ID along with his/her mother's name. We have to fix active RFID tag which is covered with latex free band in ankle of baby's leg which acts as transmitter simultaneously transmits signals to the RFID receiver and with help of the received data, controller displays ID'S information in the website. Security official inside hospital and particular ward nurse station officials where baby is situated will be monitoring 24*7 repeatedly. The active RFID tag once fixed in the baby's leg should not be removed until the discharge period(the time will be fixed at the time of birth of baby). Active RFID tag fixed in the baby's leg has a frequency of 20khz which is very low frequency range and will not affect baby's health in any cause. Similarly the tag is water resistant and also the tag is reusable, once a baby uses the tag and discharges from the hospital the same tag can be used by another baby who is in hospital.

A website will be created to enable the security officials in the hospital to monitor the status of the baby in the hospital especially the location area, and also in the website all the Information regarding the Infants those who fixed tag are stored. Using IOT we are monitoring the tag's location details and storing the data in Cloud storage and displaying the information in the Website

Every Infant is allocated in a separate ward area and details of the ward location are stored in the database. The Status of the baby is monitored regularly by the Security official inside the hospital and also particular ward nurse station official. If the infant moves to other ward areas OR moves near the exit areas of the hospital(with the tag fixed in baby's leg) the Controller checks the available tags database and produces alert message with activating buzzer automatically alerting the security official inside hospital, particular ward nurse station official and also gate security official to. In case of emergency alert only the gate security will be alerted to close the available exit areas in the hospital else he will not be able to monitor the status of the baby. In Some case, there may be situation where the baby should be taken to another ward for treatment or some other case at that time, Nurse can inform the particular ward station official and can take baby to other ward, in case if baby moves near exit areas of the hospital then the buzzer will be activated automatically alerting the security officials.

Similarly if the tag is been Cut into pieces OR tag has been removed before the discharge time else the power supply has been turned off suddenly then alerts to the security officials with activating buzzer automatically takes place

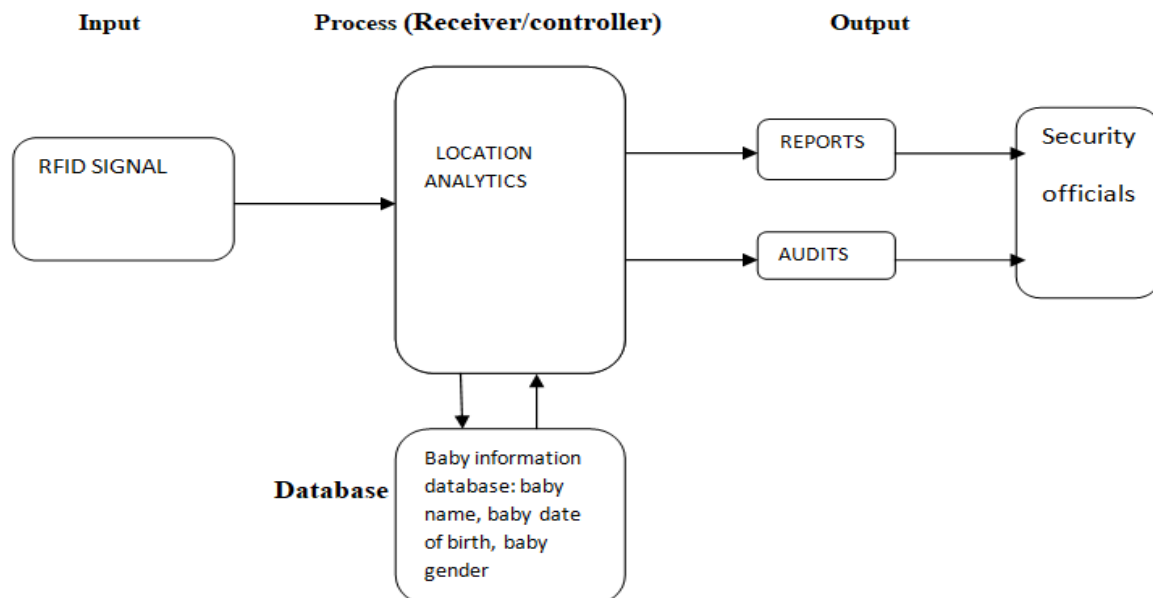


Figure 2- Conceptual Framework

V BLOCK DIAGRAM

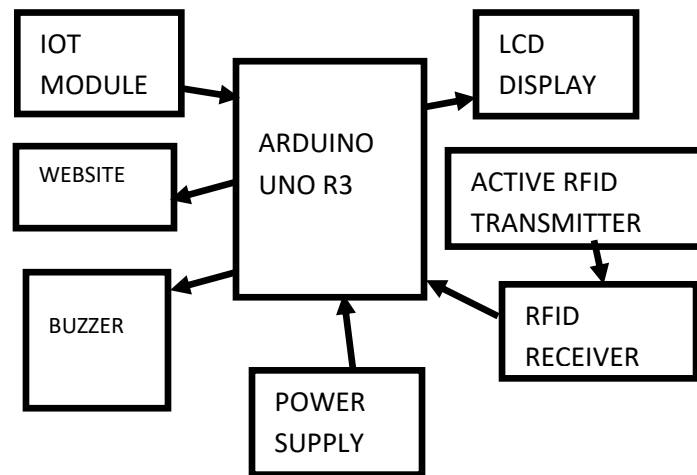


Figure 3-Block diagram

VI HARDWARE IMPLEMENTATION

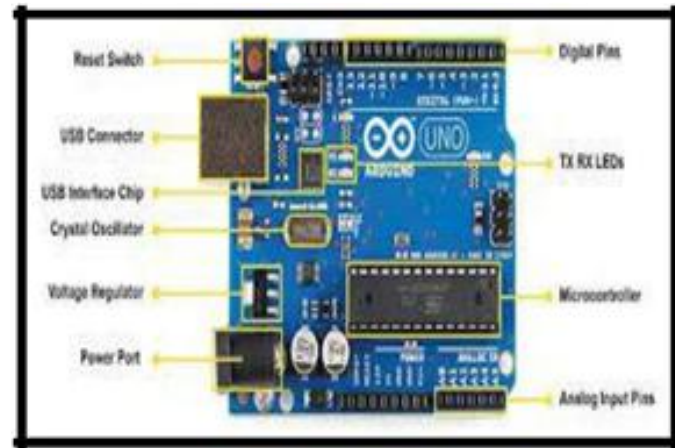


Figure 4- Arduino Uno

5.1. DESCRIPTION

The Arduino UNO is a microcontroller board based on the ATmega328. It is made of 14 digital Input/output pins in which 6 can be used as PWM Outputs and also it has 6 analog inputs, a 16 MHZ Crystal oscillator, a USB connection, a power jack, an ICSP header and a reset button. It contains everything needed to support the microcontroller; also simply connect it to a computer with a USB cable or power it with a AC to DC Adapter or battery to get started.

VII SOFTWARE IMPLEMENTATION



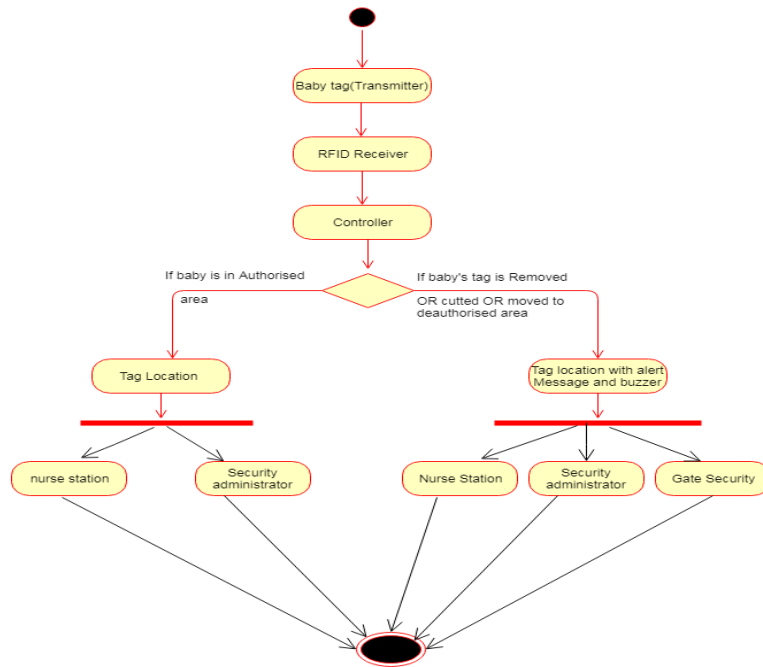
Figure 5 - Open source IDE

6.1. ARDUINO IDE

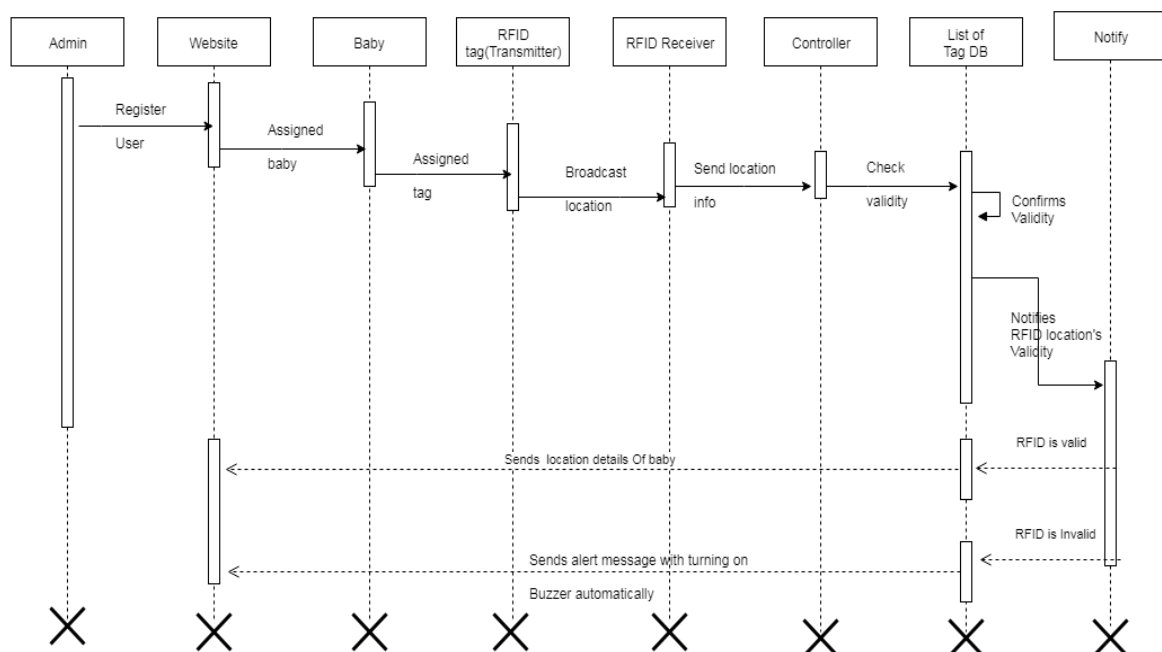
Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or **IDE** (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board. The Arduino Integrated Development Environment contains a text editor for writing code, a message area, a text console, a toolbar with button of common functions and series of menus. It connects to the Arduino and Genuino hardware to upload programs and communicate with them. In order to program the Arduino board, we need to use IDE provided by Arduino.

VIII UML DIAGRAMS

7.1. ACTIVITY DIAGRAM



7.2. SEQUENCE DIAGRAM



7.3. USE CASE DIAGRAM



IX ENVIRONMENT

An integrated development environment (**IDE**) is a software application that provides comprehensive facilities to computer programmers for software development. An **IDE** normally consists of a source code editor, build automation tools, and a debugger. Most modern **IDEs** have intelligent code completion. **IDE** is based on Processing Programming language and supports ARDUINO language. **IDE** (Integrated Drive Electronics) is a standard electronic interface used between a computer motherboard's data paths or bus and the computer's **disk** storage devices. Usually, **IDE** works by connecting to a computer through an Integrated Drive Electronics (**IDE**) interface. Essentially, an **IDE** interface is a standard way for a storage device to connect to a computer

X PROJECT SUMMARY

The main focus of this project was to develop a wireless baby tracking system designed for the hospitals. This will enable security officials to receive alerts in case their baby went out of a predefined area, which is within the hospital zone. The functionality of the solution was taken into consideration in this project. For instance, triggers to sending the alerts were validated in order to ensure that the users were not sent false alerts. Security of the solution was also considered in order to ensure that the security of the babies was not compromised.

XI CONCLUSION

This paper may be helpful in future in preventing theft of Infants in hospitals. The study showed how remote monitoring using RFID tags can be achieved in child tracking. The Arduino UNO used is a simple prototype model which works more efficiently.

Aim is to implement this system especially in government hospitals because the percent of theft of infants takes place high in government hospitals. The complete setup of the project is less cost so that even common people can use this security system, which is our main aim, also the components used in the system is less cost and efficiency is more it will be useful for common people at low cost.

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