BABY MONITORING SYSTEM FOR WORKING WOMEN BASED ON ANDROID PLATFORM

R. Yamini[1], H. Adithyan[2], G. ArunKumar[3] ,R.M. Balaji[4]

[1]*Assistant Professor, Adhiyamaan College of Engineering*
[2]*Student, Adhiyamaan College of Engineering*
[3]*Student, Adhiyamaan College of Engineering*
[4]*Student, Adhiyamaan College of Engineering*

Abstract -Baby monitoring system is mainly focused for working women after their maternity leave. Mothers can monitor their child even during their working time just by an alert message. There are three main sensor used in the baby dress to have notification about the baby important things. The first sensor is the wet detector sensor which is fixed to the baby diaper will monitor the filling level of diaper through urinary. This monitoring will help the mother to protect the baby from urinary infection, caused due to long time usage of same diaper. The second sensor used is body temperature wireless sensor that is fixed to the dress of the baby to monitor the baby's body temperature and send an alert message when the temperature is above 100°, during the baby is suffering from fever. The third sensor is axis sensor that is used when the baby hit somewhere or fall somewhere using the vibration of the body the sensor will send the alert to the mom. And the final is distance signal range Bluetooth process in this any of the above sensor can be fit in the baby dress, if the baby cross the door that is the range fixed by the mother is crossed by the baby then alert call will be sent to the mother. All the sensor used are designed in water proof manner. Sensors used are connected with micro controller through which GSM communication is also connected for getting the alert message. This framework screen fundamental parameters, for example, internal heat level, dampness condition, development of a baby and utilizing GSM organize this data is moved to their folks. Estimations of this crucial parameters should be possible and under hazard circumstance passed on to the guardians with caution activating framework to start the correct control activities. The framework design comprise of sensors for observing indispensable parameters, LCD screen, GSM interface and a sound ringer all constrained by a solitary microcontroller center.

Keywords- Baby monitoring, microcontroller, GCM network.

1. INTRODUCTION

In the past few decades, female participation in the labor force in the industrialized nations has greatly increased in present status society. Subsequently, infant care has become a high challenge to many families in their daily life. Mother is always worries about the wellbeing of her baby today. As we seen in India both the parents need to work and look after their babies/infants, so more workload and stress is there on such families especially on female counterparts. If a system is developed which continuously gives updates data's about their infants during illness or during normal routine life then it will be of great help to such persons as they can work in stress less environment giving more fruitful output. Also urgent situation condition can be quickly be noticed android and handled within less time. Usually, when a young baby cries, the cause is one of the following things .So we developed a prototype which can monitor the activities of the babies along with finding one of the above causes and give this information to their parents .Nowadays, all are busy with their work, especially women have to handle their home activities and office works. After long working time, they have to take care of the home as well as baby. In this proposed system a smart baby monitoring which helps to working women to monitor their baby. This system is an android studio based implementation. It contains smell sensor, wet sensor, IR sensor and temperature sensor to detect the baby activities. The android app is smart system for baby monitoring system.

2. LITERATURE SURVEY

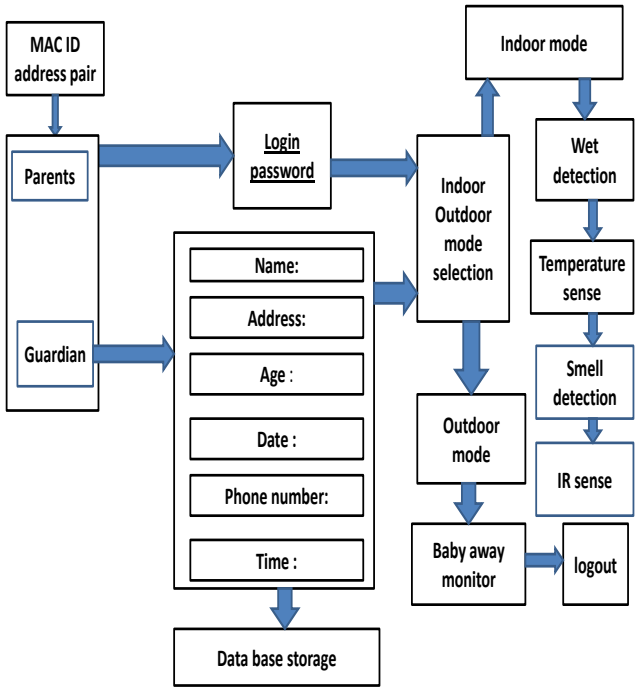
a) This paper represents an automated alarm system for Diaper wet. The design of the system used by an Propelled Radio Frequency handset and GSM framework. At the point when the diaper is moistened, the obstruction between the divided conductors drops down to the pre-fabricated worth. In this way, the identifier and RF transmitter convey the sign to RF collector. The GSM is basically used to draw out the important caution sign. At the point when the diaper is supplanted by new one, the finder is separate from the weight studs for reusable and the conductor is discard alongside the grimy diaper. At the point when alert sign, it will reflex and informed the clients by means of the portable system about the odds of break-in utilizing either call or SMS. The portable call GSM caution framework can puts away to 6 digit telephone numbers and the alert framework are work by make the alert calls to these numbers. This framework can likewise stores 3 digit SMS number. It will help to sends caution SMS to these numbers consequently when alert jumps on.

b) The baby unit includes a microphone and can transmit sounds to the parent unit. Though, in order for the parent want to detect a problem with the children, the parent must constantly monitor the sounds being transmitted from the baby unit.

c) This proposed structure give a harmony deal of judgment to loved ones when they are a long way from their infant kid as they can get a revive position of their thriving. The other great position is the programmability of wake up clock stipulation can lessen any misstep through a trademark sensor. Correspondence is done by GSM UI in which Short Messaging Service (Atomic number 62) is first consonant isolating of the first GSM game plan of standards and its procession lines just by a sweetheart's couple of biomedical parameters watchmen can get information about their prosperity.

d) The smart baby room prototype model has a PIR sensor, Gas sensor. These sensors are connected to Arduino. When there is any movement occur in the room the PyroInfrared sensor activates the Arduino and GSM module. Arduino switch on the light, which can be clearly seen.

3. SYSTEM ARCHITECTURE



4. OPERATION

- Our proposed system is based on GCM network. the proposed system consist of various sensors to monitoring diaper wet condition, moisture and baby temperature condition and also implemented android mobile app for wet condition and if the baby crossing border or not.
- The smart phone receiver and starts alarming sound using buzzer indicator as well as alert information is transferred to the parents using GCM network. The hard ware implemented using Microcontroller lcd sensor, GCM.

5. HARDWARE BLOCK DIAGRAM

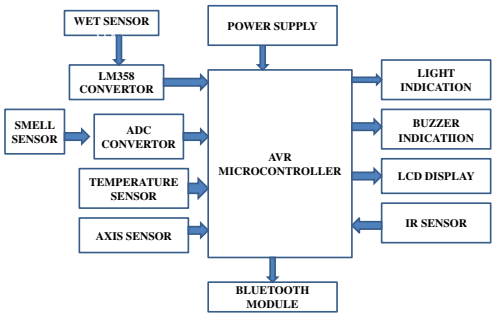


Fig no2:Block diagram

6. HARDWARE USED

6.1 AVR microcontroller

AVR represent RISC is an adjusted engineering, 8-piece RISC, single chip controller which was structured by two understudy of Norwegian Institute of Technology, Alf-Egil Bogen and Vegard wollan and afterward was created by Atmel in 1996. The AVR was one of the first microcontroller families to use on-chip streak memory for program stockpiling, rather than OTP Read Only Memory, EPROM or EEPROM utilized by different controllers around then.

FEATURES:

High Performance 8-Bit MCU

• RISC Architecture

– 32 Registers

– 2-Address Instructions

– Single Cycle Execution

• Low Power

• Large linear address spaces

• Efficient C Language Code Density

• On-chip in-system programmable memories

6.2 Temperature sensor:

A thermistor is a temperature sensor constructed of semiconductor material that exhibits a large modification in resistance in part to a tiny low alteration in temperature. Thermistors are modest, rough, dependable and reacts rapidly. Since of these character thermistors are utilized to quantify straightforward temperature estimations, however not for high temperatures. Thermistor is easy to utilize, modest, tough and react typically to an adjustment in temperature.

6.3 smell sensor

The smell sensor is utilized to identify the awful stench. The module adaptation of this sensor accompanies a simple Pin which makes this sensor to work even without a microcontroller and that proves to be useful when you are just attempting to identify one specific smell. With regards to gauge the smell in ppm the simple pin must be utilized, the simple pin likewise TTL driven and takes a shot at 5V and henceforth can be utilized with most basic controllers.

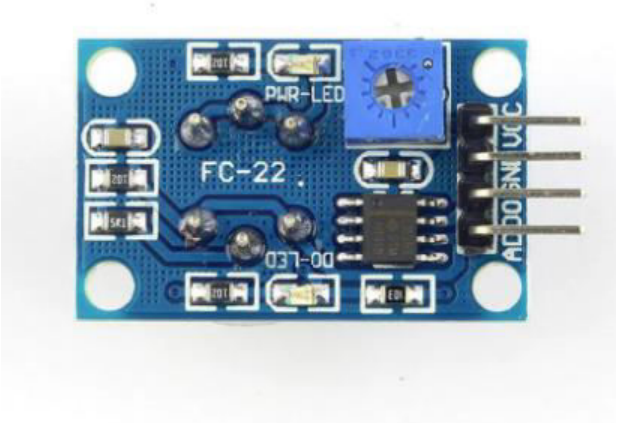


Fig no3: smell sensor

6.4 Power supply:

While power source prerequisites for computerized circuits are somewhat straightforward and immediate, a force supply for simple circuits is less explicit, and afterward harder to definitely characterize. Rather than a straightforward, "All circuits require a 5 volt power source," we can have a huge scope of intensity supply necessities.A common power requirement for portable low-power equipment such as a basic transistor radio is 5 volts, so it can be powered from a compact 12-volt battery.

6.5 Wet sensor

The WET Sensor is used for baby diaper moisture condition detection then it has two conductivity plate to sense the urine detection of the baby.

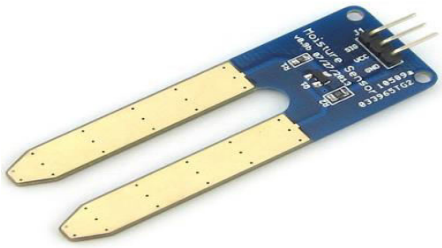


Fig no 4: wet sensor

6.6 LCD display

The Liquid Crystal Display is a type of flat panel display (16*2) which uses liquid crystals in its primary form of operation.

In this project display is used for monitoring the sensor data's.

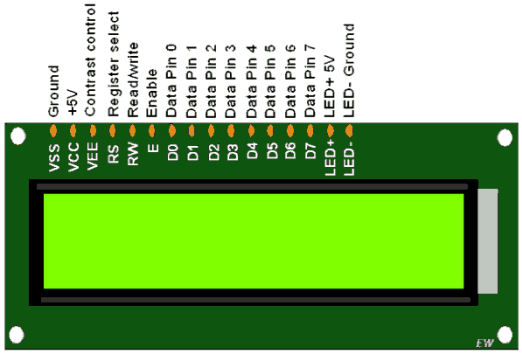


Fig no5: Lcd display

6.7 HC-05 module

HC-05 remote module is a simple to utilize Bluetooth SPP (Serial Port Protocol) module, intended for straightforward remote sequential association arrangement. This sequential port Bluetooth module is completely qualified Bluetooth V2.0+EDR (Enhanced Data Rate) 3Mbps Modulation with complete 2.4GHz radio handset and baseband.

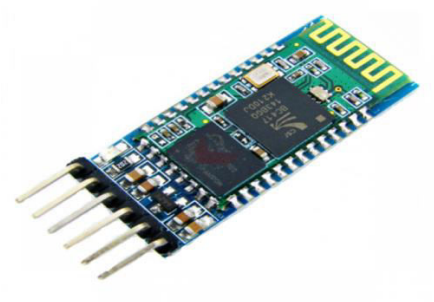


Fig no 6: hc-05 device

6.8 IR sensor

Infrared sensor is a simple electronic device which emits and detects IR radiation in order to find out certain objects in its range. In this project it is used for sense the baby crossing the door are not.

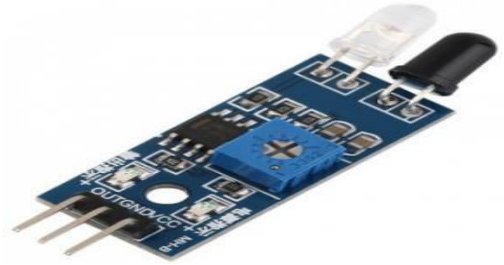


Fig no 7: IR sensor

7. SOFTWARE USED

7.1 keil software

The Keil software development tools for ARM offer numerous features and merits that help you rapidly and successfully build up embedded applications. They are trouble-free to use and are fail-safe to help you achieve your design goal. The µVision IDE and Debug is the central part of the Keil ARM development tools. µVision offers a Build Mode and a repair Mode. In the µVision BuildMode you maintain the project files and generate the application. µVision uses either the GNU or ARM processor development tools.

7.2 Android studio.

Android Studio is the official IDE for Android Application Development and it is based on Intel IDE. Android studio contain all the tools which are required to build an application. `Android Studio can be introduced on Windows working frameworks, OSX and Linux and is discretionary by Google itself that the equipment must have in any event 4 GB of memory space and 1GB of free hard circle space, yet we prescribe that you have more memory since it was noticed that Android Studio is still somewhat moderate. You must have Java installed on the machine via the JDK (Java Development Kit), not the JRE, as it is typically installed, once to develop on Android is necessary for all Java improvement classes to be present on the machine.

8. CONCLUSION

In Baby Monitoring System is a low cost and simple to use, which can get better the quality of infant-parent communication. This system expressively provides the parents with the feeling of assurance. The constant capturing of multiple biological parameters of the baby and analysis of the overall health care system helps mother to understand the internal status of the baby. As (HC-05) Bluetooth technology is used to make the users to communicate for longer distances. This is a convenient system to monitor the baby's condition from any distance.

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