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BABY SITTER SYSTEM USING IOT

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Abstract: Analyzing A Parent's life throughout the age of modernization their life is subject to alterations because of child monitoring. The problems of a parent in managing and raising a child as they attend to their duties at work are our area of concern in this project. The intended impact of this project is to minimize the challenges faced by parent by Establishing an IOT based Smart Cradle monitoring System that will help any Parent to monitor his/her child. This cradle has an option of swinging that is triggered by the sound of crying baby to swung the cradle automatically. This proposed smart cradle has been fitted with an camera to enable parents monitor their babies at all times. basic cradle is developed by using an Node MCU sound sensors wetness sensor swinging mechanism along with other electronic component to enhance the Present day cradle. All in all this project is quite efficient and reliable and can deliver result better then conventional cradle

Keywords: -Cradle,Mcu,Firestore Clouds

1.INTRODUCTION

Over the last few decades there is huge migration of population to metro cities in search of better employment (especially in case of women employees). At present couples who both are working may find it complex to provide adequate time and attention to their baby. During the corona many people were having their working from home and it becomes very challenging to balance work and parenting This becomes

very hard on parents especially when the baby is sick and needs constant monitoring which might lead to taking a leave from work. This not only impact the parent's career but also put a stress on parents hence there is need to ease the burden of monitoring and nurturing. This is the area that we propose the following project that would seek to address this problem through the formation of an IOT based smart cradle system to effectively manage child. We

should develop an IOT based smart cradle system that will help parent in monitoring of their child whether they are at work or at home. This cradle system also available in automatic swing on the detection of the baby crying sound also it gives a certain time period for the baby to stop crying or else it will give an alarm to the parent's mobile number, It also has a wetness detector to detect the wetness of the mattress and it will send SMS to the parents mobile. There is a camera mounted on top of the cradle to enable the parent monitor their baby at work without physical contact. This cradle also comes with an automatic toy for baby entertainment to avoid as much crying as possible from the baby.

2. LITERATURE SURVEY

Marie R. Harper and Maxine R. Blea was the creator of the first automatic rocking cradle in which the cradle rocks parallel to a horizontal plane as a human would when rocking a cradle. The spring motors are employed with the purpose of creating to-and-fro movement in crib. Springs motors are fixed in the crib of cradle which provide motion same as human efforts. The spring motor is of any known type where the gear – operating means is easily stopped when the

slightest resistance or opposition to its movement is encountered thus giving an extremely safe device for use with small children or babies. The benefits include; this system is cheap, safe for use by small babies because in case there is resistance against the swinging of the crib this will automatically come to a standstill, requires minimal supervision and participation from individuals. The limitation of this system is that, the system does not provide video monitoring [1]. Yang HU designed an algorithm for the speed control of the motors with the parameters acquired from baby monitoring this model assisted the user in swinging on the pattern of the intensity of the baby crying. [2]. are used to provide oscillatory motion to crib. Springs motors are attached to the crib of cradle that produce motion same as human efforts. The spring motor is of any known type in which the gear –operating means is easily stopped when the slightest resistance or opposition to its movement is encountered, thereby providing on extremely safe device for use with small children or babies. The advantages of this system is cost effectiveness, safe for small babies as it has mechanism to stop swinging of crib whenever a resistance is occurred, require

less human efforts and presence. The limitation of this system is it does not support video monitoring [1]. Yang HU developed an algorithm to control the speed of motors based on the parameters obtained from baby monitoring this model help the user to control the speed of swinging on pattern of intensity of baby crying. [2]. In [3] authors have developed a cradle system with an android app to monitor baby which swings automatically on detection of baby cry sound. The working of this mechanism is that a sound sensor recovers sound produced by baby during crying and then compares it with Preset value in microcontroller if sound produced by baby is more than preset value then microcontroller generates a signal and the swing mechanism starts and also send an SMS to the parent's phone through GSM module. Further there is a provision of a camera mounted at the top of connect cloud server so that parent may request a video of the camera anywhere. In [4] the authors have employed a Gas sensor (MQ-135) Temperature sensor (LM-35), sound sensor (KY-038) and a cloud server to implement it with Raspberry pi in order to transform cradle system into modern looking private space as required by parents. There are three

sensors; all the data taken from baby body parameters are stored in the cloud which keep on sending SMS to parent regarding baby parameters at regular interval of time. This system is flexible as it involves a limited use of hardware equipment and also affordable. The limitation of this system is that it only informs the parent about the baby status but do not initiate any means to stop the baby from crying. In [5] presented a framework which fulfill all the indication regarding the child – Like heartbeats and internal heat level through remote innovation and cry sounding sensors which is used for cry pattern of the child.ents. The three sensors records the data collected from baby body parameters and all the information taken from sensors is stored in cloud which keep on sending SMS to parent regarding baby parameters at regular interval of time. This system is user friendly as it requires less hardware components and cost effective. The limitation of this system is that it only informs the parent about baby status but don't take any action to make him/her stop crying. In [5] introduced a framework which observe all necessary indication of the child like heartbeats and the internal heat level utilizing remote innovation and sound sensors which is used

for observing the cry pattern of the child. Also, instead of utilizing monitor to get live image of the infant, this is getting by camera module through Wide Area Network (WAN) it can be mailed and utilize can keep oversight of the baby from far distant area of the world. The camera module is also induced which helps to monitor the activities of the child and, also looks after the development of an infant in a controlled region. This tool is facile and rather affordable in terms of costs.

Implementation Study

The existing and traditional cradles are not equipped with any automatic functions. When it comes to observing the baby movements the parent has to sit next to them the whole time, which is nearly impossible for the parents to focus 100%. Several issues may occur as a consequence of the parent putting their kid in cradle without supervision. Some may even have a care taker but this may be costly which people cannot afford . For these reasons a smart cradle system should be developed for monitoring the baby efficiently.

PROPOSED METHEDODOLOGY

The following features are present in the

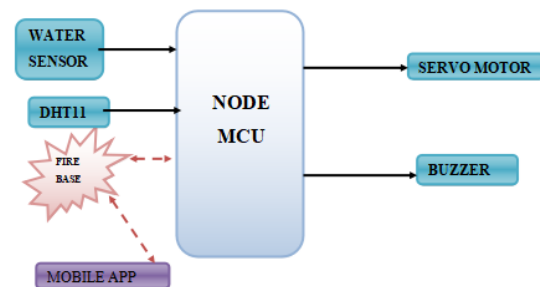
proposed system:

Automatic swinging of the cradle if the baby cries
Checking the wetness condition of the baby
Monitoring temperature around the cradle.
Observing the readings of baby's cry.

Advantages of Gad get over existing Technology:

- Portable Can be easily carried any where
- Comfortable and Easy to Use
- Reduced Cost
- Wi-Fi Enabled
- Easy monitoring

MODULES:



TECHNOLOGIES

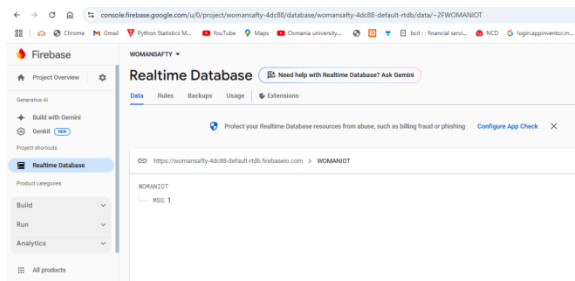
IOT:

The **Internet of Things (IoT)** is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

FIREBASE:

Firestore's first product was the Firestore

Real-time Database, an API that synchronizes application data across iOS, Android, and Web devices, and stores it on Firebase's cloud. The product assists software developers in building real-time, collaborative applications.



NODEMCU:

NodeMCU is a low-cost open source IoT platform. It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module. Later, support for the ESP32 32-bit MCU was added.



SERVO MOTOR

Servo is a general term for a closed-loop control system. A closed-loop system uses the feedback signal to adjust the speed and direction of the motor

to achieve the desired result.

A servo motor is a small device that has an output shaft. This shaft can be positioned to specific angular positions by sending the servo a coded signal. As long as the coded signal exists on the input line, the servo will maintain the angular position of the shaft.

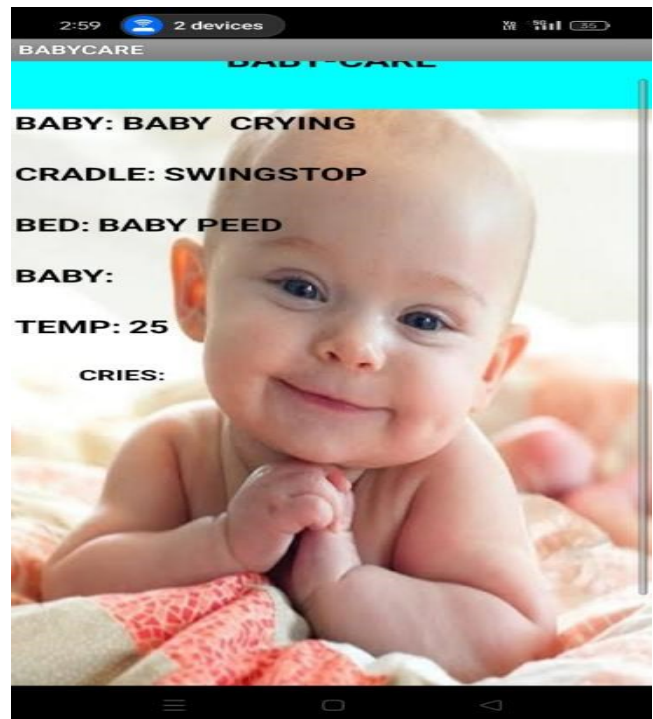
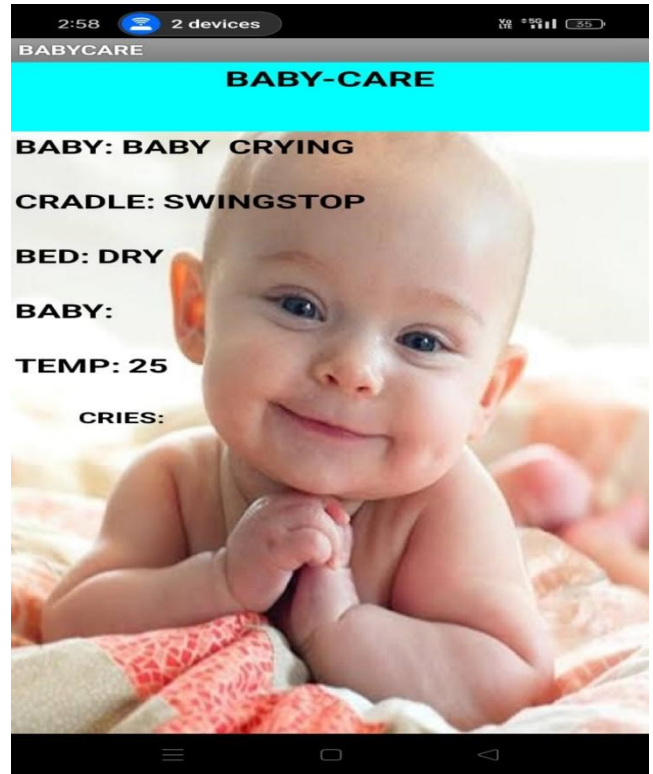
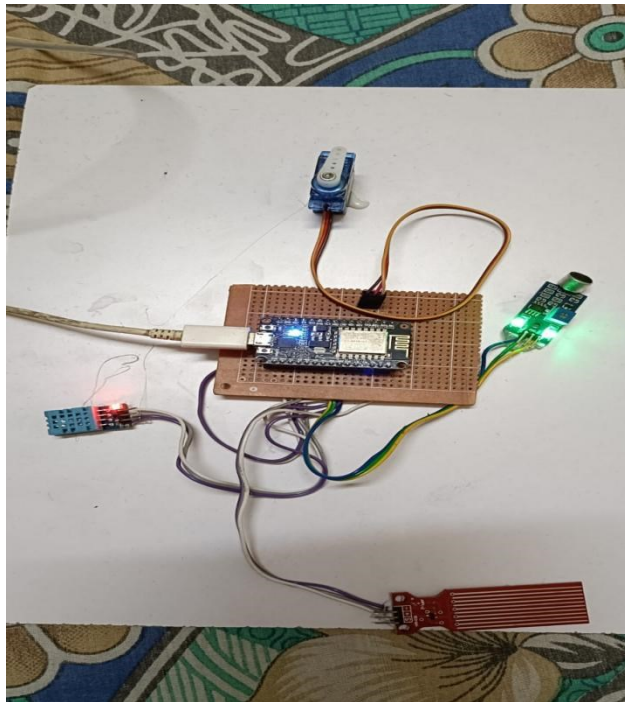
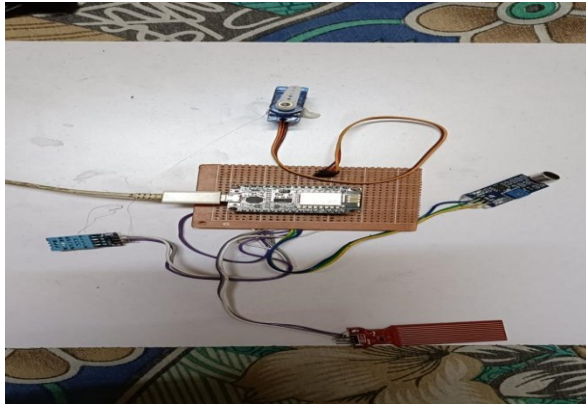


MIC SOUND SENSOR:

Integrating a **mic sound sensor** into the project allows the cardel (controlled by the servo motor) to respond to sound levels, such as a **clap or loud noise**. This adds another control mechanism for moving the cardel, besides the water sensor.



4. RESULT AND EVALUATION METRICS



5. CONCLUSION

6. Also, technology growth has been rapidly increased. As technology has been invented to a very big extent, it can benefit the society in different perspectives. Automated cradle is the best example when working parents have much work at work already and they have to look after a baby too. Cradle system makes them confident that their baby is safely lying in the cradle. Cradle which is less expensive and more secure and have more features than the SIP cradle. Health of small baby is always consideration for which parents are always concerned. Meant for that purpose that baby will be healthier, that cradle system is constructed. This bouncing baby cradle should allow the working mother to go on with her other household chores and at the same time attend to the needs of the baby.

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