Project Design phase-1

Proposed Solution

Date	19 September 2022
Team ID	PNT2022TMID17569
Project Name	**IoT Based Safety Gadget for Child Safety Monitoring and Notification**
Maximum Marks	2 Marks

Proposed Solution Template :

S.No	Parameter	Description
1	Problem Statement(Problem to be solved)	The overall percentage of child abusements filed nowadays in the world is about 80%, out of which 74% are girl children and the rest are boys. For every 40 seconds, a child goes missing in this world. Children are the backbone of one's nation, if the future of children was affected, it would impact the entire growth of that nation. Due to the abusements, the emotional and mental stability of the children gets affected which in turn ruins their career and future. These innocent children are not responsible for what happens to them. So, parents are responsible for taking care of

Project Design phase-1

Proposed Solution

		their own children. But, due to economic condition and aims to focus on their child's future and career, parents are forced to crave for money. Hence, it becomes difficult to cling on to their children all the time. In our system, we provide an environment where this problem can be resolved in an efficient manner. It makes parents to easily monitor their children in real time just like staying beside them as well as focusing on their own career without any manual intervention.
2	Idea/ Solution description	Real-Time Child Abuse and Reporting System In the existing system, we use a voice recognition module in which the alert commands from the child are stored and kept for further reference.The GSM has a SIM which is used to send an alert message or an alert call to the trusted peoples. GPS is used to track the live location and it is used when needed. The disadvantage of this project are, i. The child could not produce the exact alert command during a panic condition. ii. The command produced may not match with the

Project Design phase-1

Proposed Solution

		previously stored command. iii. This project requires manual intervention.
3	Novelty/ Uniqueness	In the existing system, manual intervention was required. But in the proposed system, we make every action autonomously. GPS is used to track the live location of the child who is wearing that device. With the help of GPS, we can easily perform Geo-fencing concept, in which we will be able to feed a particular boundary to that device. If the child goes beyond that particular boundary specified, the respective guardians will receive an alert call using GSM. In our system, we use several components like, 1.Temperature sensor 2.Pulse sensor 3.GPS 4.GSM 5.Web camera 6.Raspberry pi microprocessor. The Temperature sensor is used to sense the surrounding temperature of the device. If the temperature level exceeds the room temperature then the alert message will be sent using GSM to the specified

Project Design phase-1

Proposed Solution

		users. The Pulse sensor is used to detect any abnormal feelings experienced by the child like fear, anxiety, nervousness, drowsiness and several other illnesses which manipulates the normal heart rate.
4	Social impact/ Customer Satisfication	One of the module in our project is temperature sensor which is used to detect the temperature of the child as well as the surrounding temperature. If there occurs any abnormal rise or fall in temperature in the body of the child or in the surrounding it will notify the user as per the coded time delay as shown in the picture. It will show the temperature and humidity values notifies the user based on the predefined value abnormal fall or rise scenarios. We also have a web camera through which we can monitor the child lively through live video streaming whenever we get notified in abnormal cases. We have an IP address for the camera fitted with the kit and we are supposed to enter that IP address in our mobile application or web application through which we can see the live video streaming of what's

Project Design phase-1

Proposed Solution

		happening around the child as shown in the picture. we can monitor the child 24/7 in real time through the help of this live streaming which makes parents feel that they are beside their children ensuring children's safety.
5	Bussiness model (Revenue Model)	Our proposed system consists of Raspberry Pi microprocessor in which all other sensors, GPS and GSM are integrated. The users are required to register using their credentials to use the application. The device will be given to the children for monitoring them regularly. We will feed the boundary value while writing code for the system and we control it using GPS for that device which is also known as Geo Fencing. These data are stored in the server.If the device moves, out of that boundary the server transfers an alert call by activating the GSM, to the user. The live location of the device will be updated in the server and pinged in the website for every few seconds. The server side coding was written in PHP and the controller side coding was written in Python. The user will receive an alert call and

Project Design phase-1

Proposed Solution

		after entering the login ID and password, they can check the live location through GPS, which was updated in the application. When giving boundary for the school unit, we can also maintain attendance by updating the entry and exit of the child, in and out, of school in the application. The microprocessor is used to control all these actions and the alert was done by checking for specific user of that device in the database.
6	Scalability of the Solution	In our system, we automatically monitor the child in real time using Internet of Things, with the help of GPS, GSM, and Raspberry Pi. This system requires network connectivity, satellite communication, and high-speed data connection when we use web camera and GPS to lively monitor. It is difficult to monitor when there occurs any hindrance to satellite communication or any network issue. There also occurs time delay in video streaming through the server. Hence in the future, these issues can be overcome by using Zigbee concept or accessing the system without internet and using high-speed

Project Design phase-1

Proposed Solution

		server transmission.