**Project Design Phase-I**

**Proposed Solution Template**

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| Date | 12-october-2022 |
| Team ID | B3-3M53 |
| Project Name | IOT Based safety gadgets for child safety monitoring and notifications |
| Maximum Marks | 2 Marks |

**Proposed Solution Template:**

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| **S.No.** | **Parameter** | **Description** |
|  | Problem Statement (Problem to be solved) | The overall percentage of child abuse cases 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 abuse, 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 their own children. But, due to economic conditions and the aim 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 allows 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. |
|  | Idea / Solution description | 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 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. We feed specific threshold values for sensors like temperature and pulse in which, if the device exceeds those threshold values or if the device gets exposed to abnormal condition then those values tend to be updated in the server. The server compares the currently obtained values with the coded threshold values, if they are beyond the threshold value, it generates an alert message through GSM. The alert messages are delivered to specified users in the form of SMS and the user can be able to login to the application to check the status and updated information. After receiving the alert messages, if the user wants to visually check the status of the child, they are required to enter specific IP address of that camera for the first time before syncing and can be able to  watch the live streaming videos which are updated to the server, for further uses they can directly view. 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. |
|  | Novelty / Uniqueness | Enable tracking of the child’s location and capturing of data remotely such as temperature, pulse. To show the child's actual data with reference values. Enable sending of notification if the child is out of location or when the device realizes abnormal conditions/situations. To trigger the alarm and enable automatic video recording whenever the emergency button is pressed. Then, emergency notification along with real-time video will be sent to and display in the  parents mobile apps. Develop a prototype of IoT wearable smart band connected to parents’ mobile apps so that they can monitor the actual condition of children at anytime and anyplace. |
|  | Social Impact / Customer Satisfaction | It assists parents to monitor their children remotely. In case situations happen, notifications will be sent to parents so that actions can be taken. Through this, child  safety can be ensured and crime rate will be reduced. However, the proposed device is not robust enough and does not contain sufficient functions to operates like a Atlantis Highlights in Computer Sciences, volume mobile phone. Hence, the future enchantments will be  adding more features, software, applications, hardware to make the proposed system capable of working more intelligently, meanwhile guarantee the safety of children. |
|  | Business Model (Revenue Model) | There are 2 ways to generate revenue from this project by creating product model. First one by introducing app for predicting child’s location remotely with some other physical factors of children. |
|  | Scalability of the Solution | It can be integrated with smart watch and apps for further advancements which is very helpful for earlier prediction. |