Ideation Phase
Brainstorm & Idea Prioritization Template

Date	16 October 2022
Team ID	PNT2022TMID21920
Project Name	Project - IOT based safety gadget for child safety monitoring and notification
Maximum Marks	4 Marks

Step-1: Team Gathering, Collaboration and Select the Problem Statement

IoT or the internet of things is characterized as a forthcoming innovation that empowers us to create worldwide networked machines and also the devices that can be helped for exchanging of communication. As we all know that the real-time application has been increasing day by day, the smart connection also had increased. Rapid population growth, led to the increase in global life expectancy and the advance of technology, paving the pathway for the creation of age-friendly environments. This had led to the necessity in designing new products for infants protection.

Infants or toddlers need parents' attention 24×7. In this present era, the cases regarding missing children have been increasing day by day, which was the main motivation that comes for the safety of little children. However, the parents cannot continuously monitor their babies' conditions either in normal or abnormal situations. Still, certain incidents like infant attacks have been reported, it is necessary to protect the baby.

Step-2: Brainstorm, Idea Listing and Grouping

In this present era, most of the wearable devices today are designed based on the location, activity, temperature, pressure, etc of the child and inform the parents via GPS. Therefore it is intended to use voice call as the way of communication between the parent mobile and child's wearable device. The system operates on the microcontroller board and the functions of sending and receiving notifications, calls, voice messages via GPS.

What is a child safety wearable device?

Wearable technology is designed explicitly to influence the fields of health and medicine, fitness, aging, disability, education, transportation, enterprise, finance, gaming, music, etc. The main aim of this technology is to smoothly enter the daily lives of individuals and become a functional part of them.

Nowadays, we should be more concerned about the security of children. In our proposed system, this device helps parents to locate their children easily under missing conditions. At the present, there exist many wearables in the market which help track the daily activity of children and also help find the child using Wi-Fi and Bluetooth services present on the device.

Step-3: Idea Prioritization

Our proposed system is based on the Internet of Things-based Smart Child Safety Wearable Device System designed as an efficient and low-cost IoT-based system for monitoring infants in real-time. This system plays a key role in providing better care for the lost children until they reconvene with the parents.

The system architecture of the wearable is controlled by an AT -atmega328p microcontroller with an Arduino Uno bootloader. The Arduino Uno receives various types of data from the different modules interfaced to it, such as the GPS module upon being triggered by the Arduino GSM shield. The GSM shield function as an interface to transmit the data received by the Arduino Uno via SMS or MMS to a smartphone over GSM/GPRS. The GSM shield functions as a trigger for the Arduino Uno to request data from its various modules.

If an SMS text is sent to request the current location or GPS coordinates is sent to the Arduino GSM shield via the user's smartphone, then the GSM shield triggers the Arduino Uno to request the current GPS coordinates. Once the Arduino Uno has received the coordinated information, it will process this information and transfer it over to the GSM shield, which then via SMS sends.