Project Report

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| Date | 21 November 2022 |
| Team ID | PNT2022TMID29177 |
| Project Name | Project – IOT-Based Safety Gadget for Child Safety Monitoring and Notification |

1. **INTRODUCTION**
   1. Project Overview
   2. Purpose
2. **LITERATURE SURVEY**
   1. Existing problem
   2. References
   3. Problem Statement Definition
3. **IDEATION & PROPOSED SOLUTION**
   1. Empathy Map
   2. Ideation & Brainstorming
   3. Proposed Solution
   4. Problem Solution fit
4. **REQUIREMENT ANALYSIS**
   1. Functional requirement
   2. Non-Functional requirements
5. **PROJECT DESIGN**
   1. Data Flow Diagrams
   2. Solution & Technical Architecture
   3. User Stories
6. **PROJECT PLANNING & SCHEDULING**
   1. Sprint Planning & Estimation
   2. Sprint Delivery Schedule
7. **CODING & SOLUTIONING**
   1. Coding
   2. Geo-Fence 8. **RESULTS**

a. Performance Metrics

1. **ADVANTAGES & DISADVANTAGES**
2. **CONCLUSION**
3. **FUTURE SCOPE** 12.**APPENDIX**

Source Code

GitHub & Project Demo Link

# INTRODUCTION

## Project Overview

## Abstract:

This paper is mainly streamed towards child safety solutions by developing a gadget which can be tracked via its GPS locations and also a panic button on gadget is provided to alert the parent via GSM module calling for help. Parental android app is developed to manage and track the device anytime. Smart gadget device is always connected to parental phone which can receive and make phone calls and also receive SMS on gadget via GSM module, also a wireless technology is implemented on device which is useful to bound the device within a region of monitoring range, if device is moving out of monitoring range, then an alert will be triggered on binding gadget, this helps you keep a virtual eye on child. Gadget also monitors whether it is plugged on hand or not using contact switch and alert the parent as soon as it is unplugged.

## Introduction:

The internet of things (IoT) refers to the set of devices and system that stay interconnected with real-world sensor and to the internet. During years’ Child safety is under threat and it is very important to provide a technology-based solution which will help them under panic situations and monitor them using a smart gadget. The proposed system is equipped with GSM and GPS modules for sending and receiving call and SMS between safety gadget and parental phone, the proposed system also consists of Wi-Fi module used to implement IoT and send all the monitoring parameters to the cloud for android app monitoring on parental phone. Android application can be used to track the current location of safety gadget using its location coordinates on parental phone android app and also via SMS request from parent phone to safety gadget. Panic alert system is used during panic situations and automatic SMS alert and phone call is triggered from safety gadget to the parental phone seeking for help and also monitored for plug and unplug from hand, as soon the gadget is unplugged from hand a SMS is triggered to parental phone and the alert parameter is also updated to the cloud.

## Literature Survey:

1. **Authors:** M Nandini Priyanka, S Murugan, K.N.H.Srinivas, T. D. S. Sarveswararao,

E. Kusuma Kumari.

Title: Smart IoT Device for Child Safety and Tracking. Published in 2019 IEEE.

The system is developed using Link-It ONE board programmed in embedded C and interfaced with temperature,heartbeat, touch sensors and also GPS, GSM & digital camera modules. The novelty of the work is that the system automatically alerts the parent/caretaker by sending SMS, when immediate attention is required for the child during emergency.

**Merits:** The parameters such as touch, temperature & heartbeat of the child are used for parametric analysis and results are plotted for the same.

**Demerits:** To implement the IoT device which ensures the complete solution for child safety problems.

1. **Authors:** Akash Moodbidri, Hamid Shahnasser. Title: Child safety wearable device.

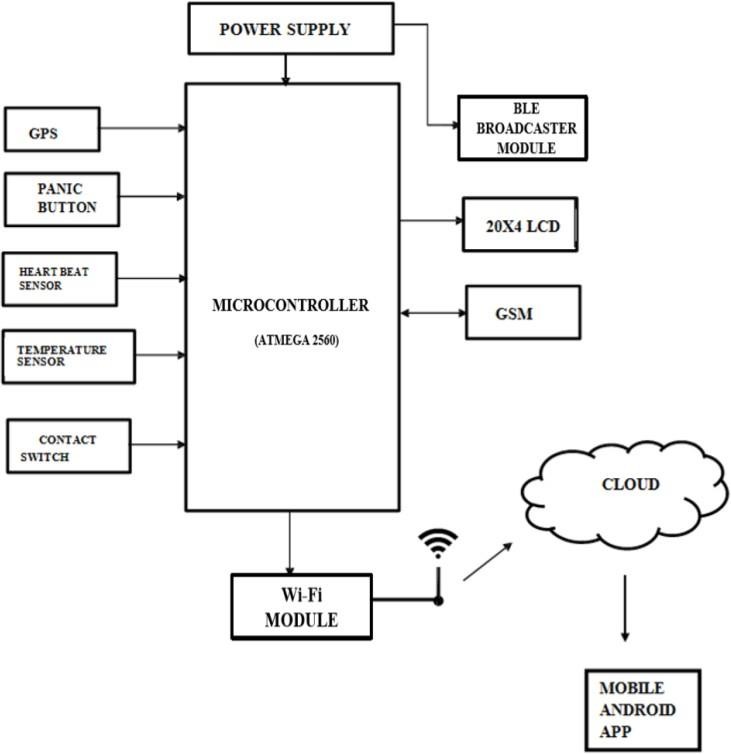
Published in 2017 IEEE.

The purpose of this device is to help the parents to locate theirchildren with ease. At the moment there are many wearables in the market which helps to track the daily activity of childrenand also helps to find the child using Wi-Fi and Bluetooth services present on the device.

**Merits:** This wearable over other wearable is that it can be used in any phone, and it is not necessary that an expensive smartphone is required and doesn’t want to be very tech savvy individual to operate.

**Demerits:** As, this device’s battery gives short lifetime. Highpower efficient model will have to be used which can be capable of giving the battery life for a longer time.

# Block diagram of smart gadget



**Proposed System:**

## Safety Gadget:

It consists of inbuilt Wi-Fi, GSM, GPS and Bluetooth modules. The link it one board is similar to the Arduino board, and it is termed as all-in-one prototyping board for safety and IoT devices. The link it one is a robust development board for the hardware and also used for industrial applications. There is a heartbeat/pulse sensor which is combined to simple optical heart rate sensor with amplification and nullification circuitry making it is fast and easy to get reliable pulse reading. The GSM/GPRS block is activated with a SIM card on the board.

# Methodology:

# This paper mainly focuses on child safety solutions which contain two major devices namely Smart gadget and BLE Listener device. The system also includes an Android app namely Parental App which will be developed and installed onparental phone.

# 1) Live Location Tracking:

# Safety gadget contains a GPS module which will fetch the current location and sends it to the microcontroller for required processing, the safety gadget is also installed with the GSM module to respond for location request sent via SMS from parental phone. The system is connected to cloud via Wi-Fi technology and hence the GPS location is updated to the cloud at regular intervals or on request, whenever parent want to monitor the location of safety device then parental app can be used which fetches all the data from the updated cloud and also display the current/live location of the safety gadget.

**2) Panic Alert System:**

The gadget is equipped with panic alert system feature which mainly consist of a button that is triggered only during certain abnormal/panic situations, this button is programmed in such a way that, once it is triggered then multiple alerts in various forms occurs within few seconds of time, SMS and also phone call is triggered to the parental phone from the safety gadget GSM module to the parental phone, which consists of current location of gadget fetched from its GPS and a pre-installed panic message seeking for help. An alert notification on parental app is triggered via Wi- Fi on safety gadget communicating to cloud where parental appreceives the information.

**3) Stay Connected Feature:**

This feature is to communicate between safety gadget (GSM module) and parental phone always connected irrespective of the situation, safety gadget canmake a phone call anytime to parental phone and vice-versa. Safety gadget which will be displayed on its screen.

**4)** **Health Monitoring System:**

The gadget consists of heartbeat and temperature sensor which is used to monitor the general health condition of child. Any abnormalities being detected in the health monitoring parameters by the safety gadget then an immediate alert is sent on the parental app via Wi-Fi. Also, displays on parental app.

**5) Gadget Plug and Unplug Monitoring:**

This feature is to keep monitoring if the safety gadget is plugged or not by monitoring the contact switch, necessary alerts are provided onparental app whenever the device is unplugged.

**6) Boundary Monitoring System:**

Binding gadget is the device which is used to satisfy this feature along with safety gadget and parental phone. This gadget is used to monitor safetygadget within a bounded area using wireless technology.

**2.Software Specification:**

The Arduino Software (IDE) which is an open-source and makes it easy to write the code as well as to upload into the board. It runs on the Linux, Mac, IOS and Windows. The programs are written in Java, based on the Processing and otheropen-source software. This software makes the interfacing with Arduino-Uno much more reliable. The primary reason for using the GS shield as the mode of communication over Wi-Fi and Bluetooth was that this gadget was aimed at being accessible toany smartphone user. Also, to make the user- friendly as possible. Applications for the Android operating system are programmed using the SDK Android software development kit and Java programming language that also may be used with C or C++.

# 3.Results:

* + 1. **Live Location Tracking:** GPS is installed on gadget to track its current location can be tracked on android app and via SMS request sent from parent phone to safety gadget.
    2. **Panic Alert Systems:** Panic alert system on gadget is triggered during panic situation, automatic call and SMS are triggered to parental phone. The alert is also updated to the cloud for purpose of app monitoring.
    3. **Stay Connected Feature:** Stay connected feature is used totrigger call and pre- defined SMS anytime from gadget to parental phone by just pressing a button and also parent can make SMS and call to the gadget anytime.
    4. **Health Monitoring System:** Health monitoring system is implemented using heartbeat sensor, temperature sensor which is updated to the cloud and also can be monitored via app. The current value of sensors can be obtained using SMS request sent to gadget from parent phone.
    5. **Gadget Plugged or Unplugged Monitoring:** Gadget plug or unplugged is monitored using contact switch installed on smart gadget, as soon as the device is unplugged, an alert is provided to parent phone via SMS, and it is also updated to cloudfor app monitoring.
    6. **Boundary monitoring system:** This is used to track the safety gadget using the binding gadget by implementing signal strength concept as soon as the safety gadget moves far away from the BLE listener gadget then an alert is provided to itself.

# 

**5.Limitation:**

The system is dependent on communication signal/network signal for the smart gadget to trigger automatic phone call/SMSduring panic situation. It can be difficult to detect when network signal is not reachable/weak/when the smart gadget moves outside the boundary range. Hence, it can be improved by increasing the range.

# Conclusion:

This research demonstrates Smart IoT device for child safetyand tracking, to help the parents to locate and monitor their children.

If any abnormal readings are detected by the sensor, then anSMS and phone call is triggered to the parents mobile. Also, updated to the parental app through the cloud. The system is equipped with GSM and GPS modules for sending and receiving call, SMS between safety gadget and parental phone.The system also consists of Wi-Fi module used to implement IoT and send all the monitored parameters to the cloud for android app monitoring on parental phone. Panic alert system is used during panic situations alerts are sent to the parental phone, seeking for help also the alert parameters are updated tothe cloud. Boundary monitoring system is implemented on safety gadget with the help of BEACON technology, as soon asthe safety gadget moves far away from the BLE listener gadgetan alert is provided to itself.

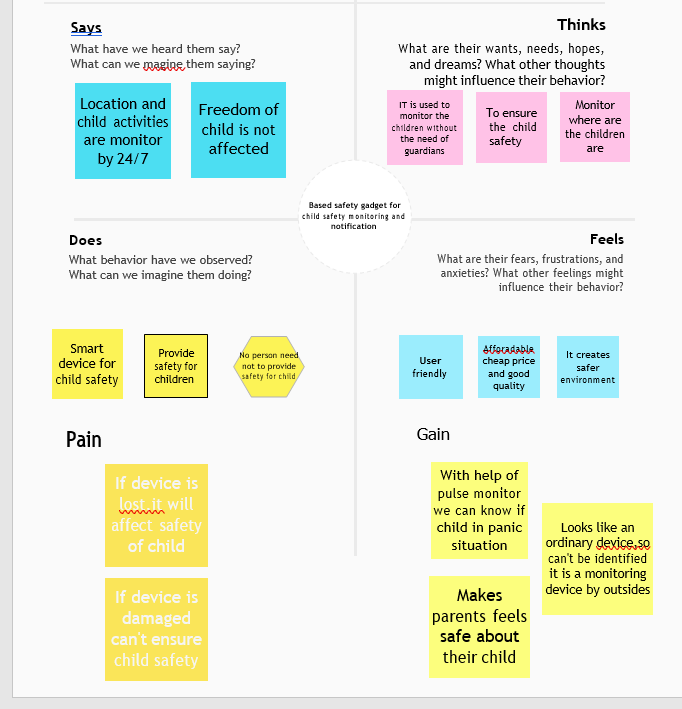
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1. M Nandini Priyanka, S Murugan, K. N. H. Srinivas, T. D. S. Sarveswararao, E. Kusuma Kumari, ‘Smart IoT Device for Child Safety and Tracking’ International Journal of Innovative Technology and Exploring Engineering, Volume 8, Issue 8, June 2019.
2. Akash Moodbidri, Hamid Shahnasser (Jan. 2017) ‘Child safety wearable device’, International Journal for Research in Applied Science & Engineering Technology, Vol. 6 Issue 2, pp. 438- 444.
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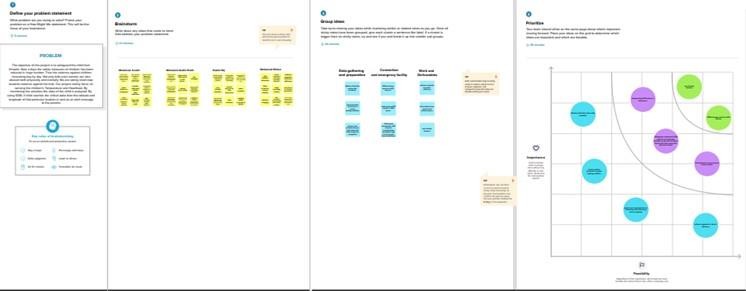
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# IDEATION & PROPOSED SOLUTION

## Empathy Map

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* 1. **Ideation & Brainstorming**



### 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 exchangingof 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 infantsprotection.

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 likeinfant attacks have been reported, it is necessary to protect the baby.

### Step-2: Brainstorm, Idea Listing and Grouping

**Team Member 1:RAGURAMAN M**

Child and women safety is a challenging problem nowadays due to antisocial elements in the society. The crime rate is day by day increasing. Schools and working places need high surveillance for ensuring the safety among children and women. Smart phones are playing major role for ensuring the safety, where some mobile based applications provide alert systems. During the emergency, mobile apps alert the control room of nearby police station or caretakers of children. The literature shows that location tracking devices are available in the market, but it does not provide the complete solution to the problem. The solution to this

problem is to design an IoT device, which senses the child’s location and environment and during emergency, it should send the alert to the parents automatically.

**Team Member 2: GURUBALAN S**

The children are too young to take care of themselves. We cannot monitor the children at all times in school, play area, and outside place. In this paper, we discuss the concept of child safety device based on Internet of things. The aim of this device is to provide safety to the child by allowing the parent to locate the child and view their surroundings. This device can be used to monitor the temperature and motion of the child. If any problem persists, the GSM mobile communication module automatically sends a text message to the parent as SMS.

**Team Member 3: PURUSHOTHAMAN D**

Crimes on children keep increasing despite actions have been taken by the government. Revealed by [9], the overall percentage of child abasements worldwide is about 80% nowadays, out of which 74% are girls and the remaining are boys. For every 40 seconds, a child is gone missing in the world. Due to that, parents are worried for their children and perhaps, a hard challenge for them to guarantee safety of their children when they are out.

To cope with the issue, the system is proposed with these objectives:

Enable tracking of the child’s location and capturing of data remotely such as temperature, pulse, respiratory rate, quality of sleep and many more.

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

**Team Member 4: V ADHI NARAYANAN**

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. Besides, unlike existing smart band, which is less focusing on child security aspect, the proposed system emphasizes in getting as much data as possible so that actual situation can be identified. , the information indicating children's status, along with reference

values will be sent to parents’ devices with the app installed. If children’s actual data is not within the range of reference value, alert notification and some suggestions will be sent to parents’ devices. Also, when children

leave geofences, notification will be sent to parents’ device.

### Step-3: Idea Prioritization

The section mainly discussed about significant of the research and why this study needs to be carried out. The child security system benefits parents as well as children. Since it aids in locating children,

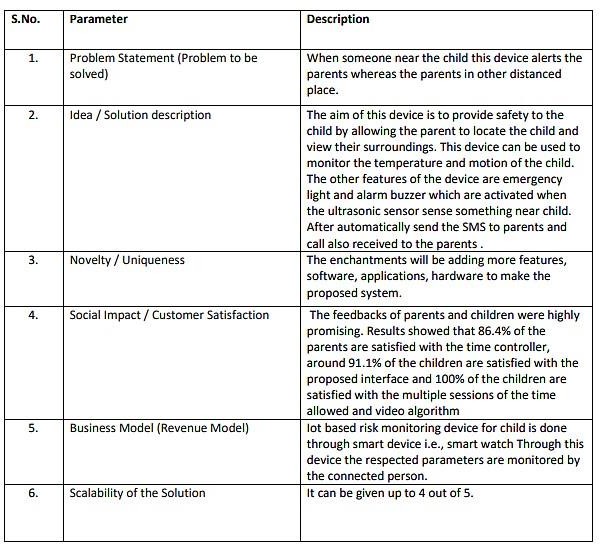
monitoring child’s condition and security status instantly at anyplace and any time, parents who often tied up in work or neglect their children are gaining advantages from it. Through the proposed system, immediate

actions can be taken forthwith in case the child is threatened. Thus, child security is guaranteed, crime rate related to children is reduced and eventually, parents can rest assured. In fact, reduction of crime rate brings about long-term positive effects such as improving country's reputation and quality of life, increasing community security, safety, and cohesion as well as generating economic benefits for individuals, committee and taxpayers. Besides, the proposed system makes ample use of IoT, proving IoT is evolving which can be included in multiple areas comprising the child security field.

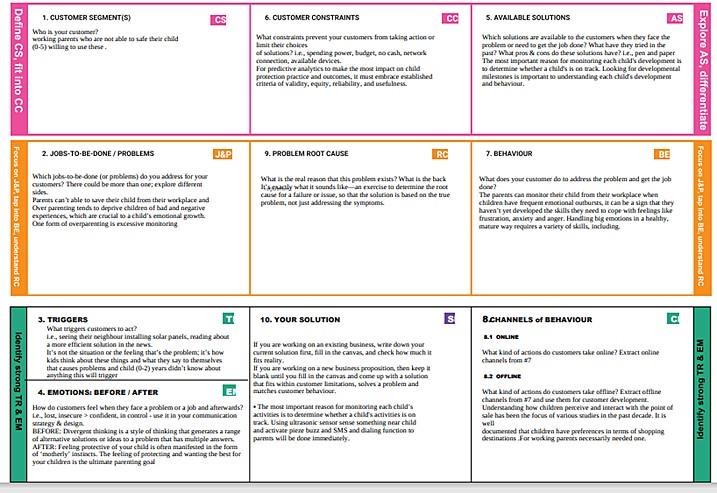
Throughout the research, it is clearly explained the IoT concept, child safety issues and the need of using child security system. Some previous studies have been included for designing the IoT-based child security smart band. It assists parents to monitor their children remotely. In case situations 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 operate like a 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

## Proposed Solution



* 1. **Problem Solution fit**



|  |  |  |
| --- | --- | --- |
| 1. | CUSTOMER SEGMENT(S) | Our Customers are mainly parents who are working and do not have enough time to take care of their children. Such parents are not provided with availability at anytime to look after their children. If the case so they are in need of something to make their children under the surveillance of  them. |
| 2. | JOBS-TO-BE-DONE/PROBLEMS | To enhance the operating condition of the developed solution the way it is not supposed to deal with any fault at any point of time so that the child safety can be highly ensured. To ensure the parents that their surveillance on  their children can never be taken off |
| 3. | TRIGGERS | The trigger which induces the customers is the one that when other working parents give a try to this and comment  a positive review on this, they also erdtoday center their |

|  |  |  |
| --- | --- | --- |
|  |  | childsafety. The trigger which induces the customers is the one that when other working parents give a try to this and comment a positive review on this, they also erdtoday  center their childsafety. |
| 4. | EMOTIONS: BEFORE/AFTER | Customers(Parents) are being frustratesd that their children are doing safe or not before using the gadget designed.  Once they start to use the developed solution they might feel free to focus on their work and also the surveillance of  their children would happen with ease at any point of time |
| 5. | AVAILABLE SOLUTIONS | Of course the solutions are available readily in the market such as angel monitoring system, Child GPS Tracking System, Child Safety GSM Kit, etc. One such constraint the  customers facing are cost and inefficiencies in the working once purchased. |
| 6. | CUSTOMER CONSTRAINTS | The constraints our customers facing are such connectivity issues or may be the protocols being used for communication. There may be chances of issues arised due to technical disefficiencies. Giving a second thought, price to be afforded for buying the developed solution kit might be  the one they could not afford. |
| 7. | BEHAVIOUR | Our proposed solution has the modes of working in both offline and Online. In case of any disconnectivities happen the gadget which ha been developed might tend to work on a plan B emmhich includes the backup of the failure of actual  working kit. |
| 8. | CHANNELS of BEHAVIOUR | Our proposed solution has the modes of working in both offline and Online. In case of any disconnectivities happen the gadget which has been developed might tend to work on a plan B Which includes the backup of the failure of actual  working kit. |
| 9. | PROBLEM ROOT CAUSE | Considering the origination of the problem, it occurs in the base of merely irrespective persons that are no way relatable to the children but for the currency kind of thing  and also the child abuse(mainly in case of girl children) |
| 10 | YOUR SOLUTION | Our Team has highly been intending to develop an efficient solution to overcome all the flaws that the existing solutions hold back still. We are highly on demand to ensure the efficient functionalities of the developing module the way it  will not fail at anytime. |

# REQUIREMENT ANALYSIS

## Functional Requirements

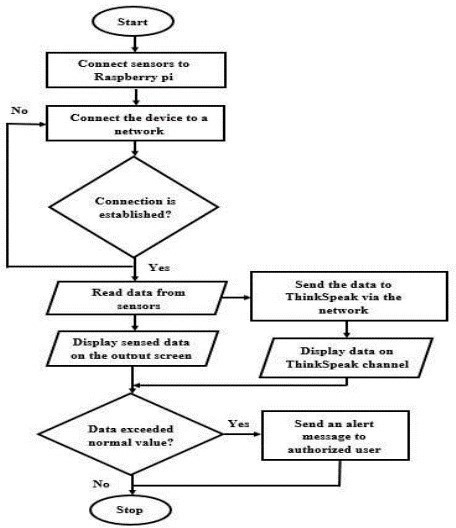
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| --- | --- | --- |
| **SI No.** | **Functional Requirement (Epic)** | **Sub Requirement (Story / Sub-Task)** |
| 1. | User Registration | Registration through Form Registration through Gmail Registration through LinkedIn |
| 2. | User Confirmation | Confirmation via Email Confirmation via OTP |
| 3. | Authentication | Only the authorized person for that product will know Ensures security |
| 4. | User Interface | The Inventor Able to see the location of children when they are out of geofence will also track the exact information about the children |
| 5. | Notification | Notified through mobile and mail |

* 1. **Non- Functional Requirements**

|  |  |  |
| --- | --- | --- |
| **SI No.** | **Non-Functional Requirement** | **Description** |
| 1. | Usability | Accessed through Mobile App Showing location (latitude and longitude) of child and also other measures to ensure safety like notification. Portable and comfortable to use. |
| 2. | Security | Database security and ensuring the safety of the product while in use. |
| 3. | Reliability | Once logged in, the webpage is available until logging out of the app, and a comfortable platform or creates a good environment for users to use. |
| 4. | Performance | Each page must load within 4 seconds and database needs to be updated every few seconds and a notification must be sent immediately if seen a  change in the child’s location. |
| 5. | Availability | The data must be available whenever needed and the product should be able to use at any time. |

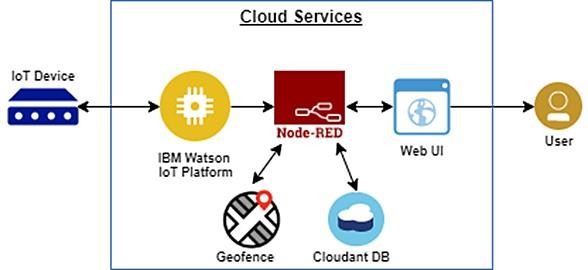
|  |  |  |
| --- | --- | --- |
| 6. | Scalability | The process must be flexible to use at anytime and versatile. |

## PROJECT DESIGN

* 1. **Data Flow Diagrams**

## Solution & Technical Architecture

The device has IOT monitoring allows to monitor the child from anywhere with any portable devices. Ultrasonic sensor are used which sense when someone near child and alarm buzz will established SMS and dialing function is made to parent



## User Stories

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **User Type** | **Functional Requirement (Epic)** | **User Story Number** | **User Story / Task** | **Acceptance criteria** | **Priority** | **Release** |
| Customer (Mobile user) | Registration | USN-1 (FATHER) | As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials  provided as a Father. | I can access my account / dashboard and receive confirmation email & click  confirm | High | Sprint-1 |
|  |  | USN-2 (MOTHER) | As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials  provided as a Mother. | I can access my account / dashboard and receive confirmation email & click  confirm | High | Sprint-1 |
|  |  | USN-3 (GUARDIAN/ CARETAKER) | As a user, I can also monitor the children’s activities using a safety  gadget monitoring system. | I can access my account / dashboard and receive confirmation email & click  confirm | Medium | Sprint-1 |
|  | Login | USN-4 | As a user, I can log into the application by entering  email & password. | I can access my account /  dashboard. | Medium | Sprint-2 |
|  | Dashboard | USN-5 | As a user, I can fix the geofence for my child’s location so that  I will receive alerts if | I can monitor the current location of my  child. | High | Sprint-2 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  | my child crosses the geofence. |  |  |  |
| Customer (Web user) | Registration | USN-1 (FATHER) | As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials  provided as a Father. | I can access my account / dashboard and receive confirmation email & click  confirm | High | Sprint-1 |
|  |  | USN-2 (MOTHER) | As a user, I can register by entering my email, password, and confirming my password. I can access the location of my children using the credentials  provided as a Mother. | I can access my account / dashboard and receive confirmation email & click  confirm | High | Sprint-1 |
|  |  | USN-3 (GUARDIAN/ CARETAKER) | As a user, I can also monitor the children’s activities using a safety  gadget monitoring system. | I can access my account / dashboard and receive confirmation  email & click confirm | Medium | Sprint-1 |
|  | Login | USN-4 | As a user, I can log into the application by entering email & password. | I can access my account / dashboard. | Medium | Sprint-2 |
|  | Dashboard | USN-5 | As a user, I can fix the geofence for my child’s location so that I will receive alerts if my child crosses the  geofence. | I can monitor the current location of my child. | High | Sprint-2 |
| Customer Care | Dashboard | USN-6 | As a customer care service person, whenever I receive a complaint, I forward the complaint and ensure that the complaint is resolved. | I can keep track of all the complaints and the status of the complaints  received. | Medium | Sprint-3 |
| Administrator | Admin Dashboard | USN-7 | As an administrator, I will take care of all the payment processes, queries and complaints and login credentials. | I can access all the customer details, payment details and complaints  received. | High | Sprint-4 |

1. **PROJECT PLANNING & SCHEDULING**

## Sprint Planning & Estimation

* 1. **Sprint Delivery Schedule**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Functional Requirement**  **(Epic)** | **User Story Number** | **User Story / Task** | **Story Points** | **Priority** | **Team Members** |
| Sprint-1 | Login | USN-1 | As a customer,  I might ensure login credential through gmail ease manner for the purpose of sending alert message to the parents or guardians (or) informing through normal message. | 2 | High | Raguraman,Gurubalan. |
| Sprint-1 | Registration | USN-2 | As a user,  I have to registered my details and tools details in a simple and easy manner by considering the safety of child, this registered system sends notification to the parents. | 2 | High | Purushothaman,  Adhi Narayanan |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Sprint-2 | Dashboard | USN-3 | As a user,  In case of any emergency situation parents(I) must get the alert notification and location of the child. | 3 | Medium | Gurubalan, Adhi narayan |
| **Sprint** | **Functional Requirement**  **(Epic)** | **User Story Number** | **User Story / Task** | **Story Points** | **Priority** | **Team Members** |
| Sprint-3 | Dashboard | USN-4 | As a user,  I(parent) need to safeguard child and tracking the child’s location and it is important to notify near police station incase of more emergency . | 2 | High | Raguraman, Purushothaman |
| Sprint-3 | Dashboard | USN-5 | As a user,  Its good to have a IOT based system to safeguard monitoring without presence of parent. | 2 | High | Raguraman,  Gurubalan |
| Sprint -4 | Monitoring the environment | USN 1 | User can monitor the situation of the environment from a dashboard that displays sensor information about the environment and child health. | 2 | High | Raguraman,Gurubalan,  Purushothaman,  Adhi Narayanan. |
| Sprint- 4 | Event Notification | USN 6 | Sending an alert SMS to the parents and guardians in case of panic situation. | 2 | High | Gurubalan. |

**Project Tracker, Velocity & Burndown Chart: (4 Marks)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Total Story Points** | **Duration** | **Sprint Start Date** | **Sprint End Date (Planned)** | **Story Points Completed (as on Planned End Date)** | **Sprint Release Date (Actual)** |
| Sprint-1 | 4 | 6 Days | 26 Oct 2022 | 30 Oct 2022 | 4 | 30 Oct 2022 |
| **Sprint** | **Total Story Points** | **Duration** | **Sprint Start Date** | **Sprint End Date (Planned)** | **Story Points Completed (as on Planned End Date)** | **Sprint Release Date (Actual)** |
| Sprint-2 | 3 | 6 Days | 02 Nov 2022 | 06 Nov 2022 | 3 | 06 Nov 2022 |
| Sprint-3 | 4 | 6 Days | 10 Nov 2022 | 14 Nov 2022 | 4 | 14 Nov 2022 |
| Sprint-4 | 4 | 6 Days | 16 Nov 2022 | 21 Nov 2022 | 4 | 21 Nov 2022 |

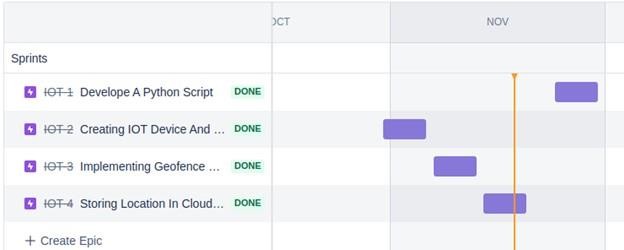
# Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 15 (points per sprint). Let’s calculate the team’s average

velocity (AV) per iteration unit (story points per day)

AV**=6.6**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sprint** | **Total Story Points** | **Duration** | **Sprint Start Date** | **Sprint End Date (Planned)** | **Story Points Completed (as on Planned End**  **Date)** | **Sprint Release Date (Actual)** |
| Sprint-1 | 20 | 6 Days | 24 Oct 2022 | 29 Oct 2022 | 20 | 29 Oct 2022 |
| Sprint-2 | 20 | 6 Days | 31 Oct 2022 | 05 Nov 2022 | 20 | 05 Nov 2022 |
| Sprint-3 | 20 | 6 Days | 07 Nov 2022 | 12 Nov 2022 | 20 | 12 Nov 2022 |
| Sprint-4 | 20 | 6 Days | 14 Nov 2022 | 19 Nov 2022 | 20 | 19 Nov 2022 |

* 1. **Reports from JIRA**

# CODING

## Coding

import json

import wiotp.sdk.device import time

myConfig ={ "identity":{ "orgId": "rdegyk",

"typeId":"safetygad", "deviceId":"gad1"

},

"auth":{ "token":"gyg06jzil(!lTGsKxV"

}

}

client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) client.connect()

while True: name="locater" #in area location

#latitude=13.145997614532394

#longitude=80.0619303452179 #out area location latitude=13.15412 longitude=80.05729

myData={'name':name, 'lat':latitude, 'lon':longitude}

client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)

print("Data published to IBM Iot platform: ",myData) time.sleep(2)

client.disconnect()

## Geo-fence

A geofence is a virtual perimeter for a real-world geographic area.[1] A geofence could be dynamically generated (as in a radius around a point location) or match a predefined set of boundaries (such as school zones or neighborhood boundaries).The use of a geofence is called geofencing, and one example of use involves a location-aware device of a location-based service (LBS) user entering or

exiting a geofence. This activity could trigger an alert to the device's user as well as messaging to the geofence operator. This info, which could contain the location of the device, could be sent to a mobile telephone or an email account.

# RESULTS

* 1. **Performance Metrics**

It is being used as it allows the correct sample of respondents to be selected due to which becomes convenient to obtain results. Besides, the results offered are affordable and usable. Since the respondents are properly chosen, the results tend to be more accurate, precise and reliable.

# ADVANTAGES & DISADVANTAGES

## Advantages

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.

## Disadvantages

It can be easily removed or damaged while playing and by any intruders.This requires internet connectivity to get monitored and to notify alert messages to parents.

# CONCLUSION

The word Future resembles the word Children. As Dr. A.P.J Abdul Kalam’s words “Youngsters are thefuture pillars of one’s nation", today's children are tomorrow's youngsters, preserving their dreams and life for a better future is necessary. Therefore, each and every parent should take care of their own children, without

letting them to fall into the dark world of abusements, which entirely ruin them physically, mentally and emotionally destroying our future. Hence, considering the importance of our future, our project makes it easy for parents to track their children and to visually monitor them on regular basis, which makes them ensure the safety of their children and reduces the rate of incidents of child abuse.

# FUTURE SCOPE

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 server transmission.

# APPENDIX

**Source Code**

# Code for IN Area Location:

import json import wiotp.sdk.device import time myConfig

={

"identity":{ "orgId": "rdegyk",

"typeId":"safetygad", "deviceId":"gad1"

},

"auth":{ "token":"gyg06jzil(!lTGsKxV"

} } client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) client.connect() while True: name="locater"

#in area location latitude=13.145997614532394

longitude=80.0619303452179 myData={'name':name, 'lat':latitude, 'lon':longitude}

client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)

print("Data published to IBM Iot platform: ",myData) time.sleep(2)

client.disconnect()

# Code for OUT Area Location:

import json import wiotp.sdk.device import time myConfig

={

"identity":{ "orgId": "rdegyk",

"typeId":"safetygad", "deviceId":"gad1"

},

"auth":{ "token":"gyg06jzil(!lTGsKxV"

} } client = wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None) client.connect() while True: name="locater"

#out area location latitude=13.15412

longitude=80.05729

myData={'name':name, 'lat':latitude, 'lon':longitude} client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0, onPublish=None)

print("Data published to IBM Iot platform: ",myData) time.sleep(2)

client.disconnect()

**GitHub Link:** [IBM-EPBL](https://github.com/IBM-EPBL)/[**IBM-Project-30468-1660147058**](https://github.com/IBM-EPBL/IBM-Project-30468-1660147058)

**Project Demo:** [**https://click.email.vimeo.com/core/?qs=9431f3831eedfee69ad59c9b3ed203dedecd0180c4eaa367df98510b60244c99eaac32bad2513084dc1cdacb69084d52f8af6147dd840f0718131ce05a4bb937**](https://click.email.vimeo.com/core/?qs=9431f3831eedfee69ad59c9b3ed203dedecd0180c4eaa367df98510b60244c99eaac32bad2513084dc1cdacb69084d52f8af6147dd840f0718131ce05a4bb937)