PROJECT REPORT

**Project Name**: IOT Based Safety Gadget For Child Safety Monitoring and Notiﬁcation

**Team ID:** PNT2022TMID19505

**Team:**

**GOWTHAM .R – TEAM LEAD ER**

**HARIHARAN.M**

**BUBEISH.P**

**LOKESHWARAN.T.S**

Project Report

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# 1.INTRODUCTION

## Project Overview

Child tracker helps the parents in continuously monitoring the child's location. They can simply leave their children in school or parks and create a geofence around the particular location. By continuously checking the child's location notifications will be generated if the child crosses the geofence. Notifications will be sent according to the child's location to their parents or caretakers. The entire location data will be stored in the database.

## Purpose

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. By this, parents know what is happening remotely and can take actions if something goes wrong. It provides parents with the real-time location to monitor the child. It makes parents to make monitor their child from their workplace.Parents can be relax and calm by using this device.

# LITERATURE SURVEY

## Existing Problem

Parents need to ensure safety of their children but in realtime they need to get to work and need to worry about their child whether he/she is safe or not.So to ensure safety they need to monitor & to notify their child what he/she is doing and to know whether they are in safe atmosphere or not to ensure the safety of the child.

## References

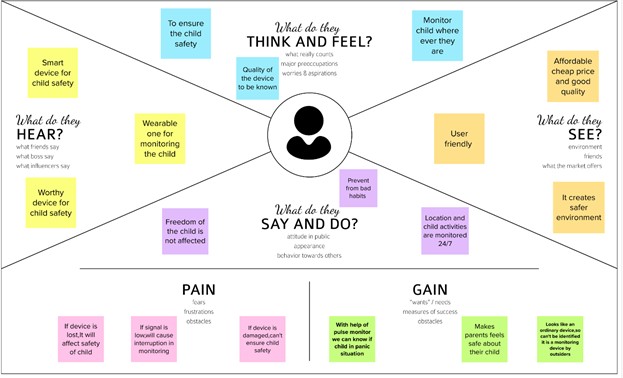
* A. Jatti, M. Kannan, R. M. Alisha, P. Vijayalakshmi and S. Sinha, "Design and development of an IOT based wearable device for the safety and security of women and girl children," 2016 IEEE International Conference on Recent Trends in Electronics, Information & Communication Technology (RTEICT), Bangalore, 2016, pp. 1108-1112.
* David Hanes, Gonzalo, Patrick Grosetete, Robert, Barton, Jerome Henry “IoT Fundamental and Networking Technologies, Protocols”.

## Problem Statement Definition

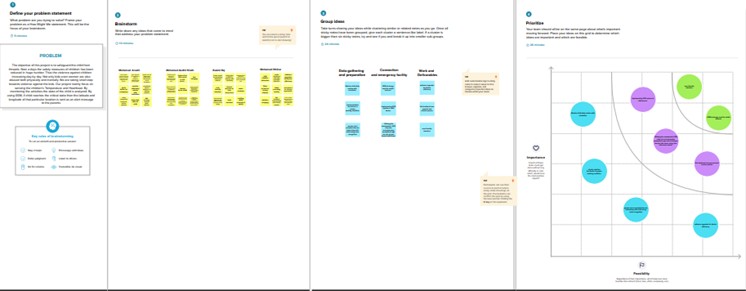
The objective of this project is to safeguard the child from threads. Now a days the safety measures of children has been reduced in huge number. Thus the violence against children increasing day by day.Our project mainly focus on sensing the children’s Temperature and Heartbeat. By monitoring the activities the state of the child is analyzed. By using GSM, if child reaches the critical state then the latitude and longitude of that particular location is sent as an alert message to the parents.

# IDEATION & PROPOSED SOLUTION

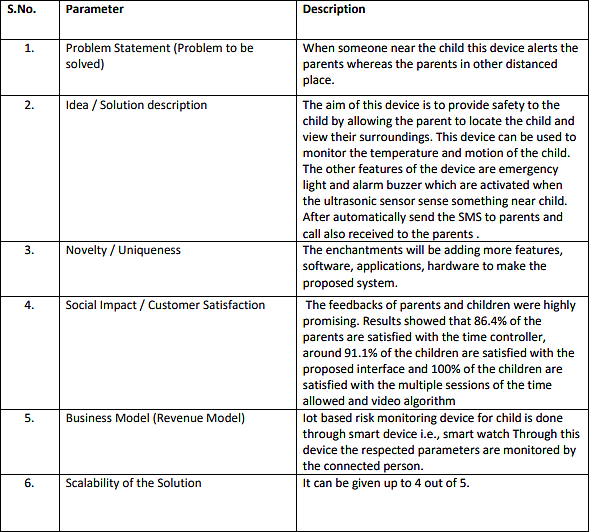
## Empathy Map Canvas



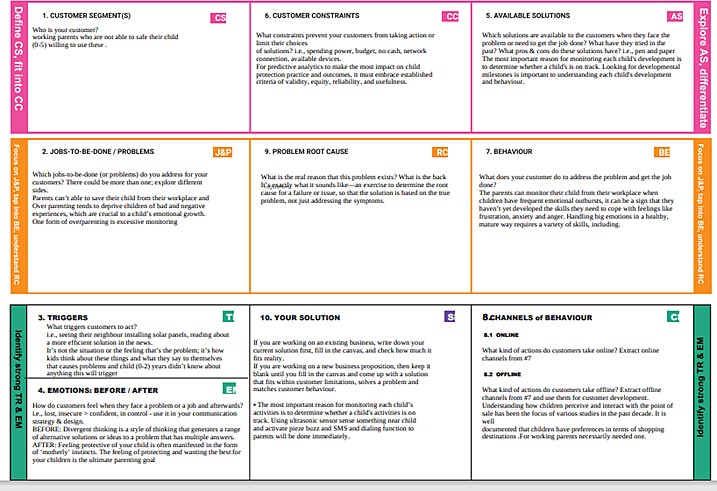
* 1. **Ideation & Brainstorming**



## Proposed Solution

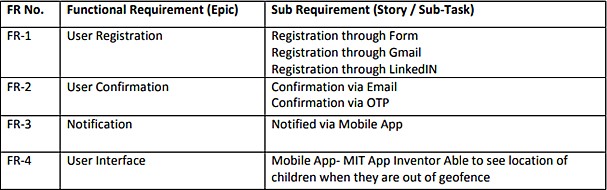


* 1. **Problem Solution fit**

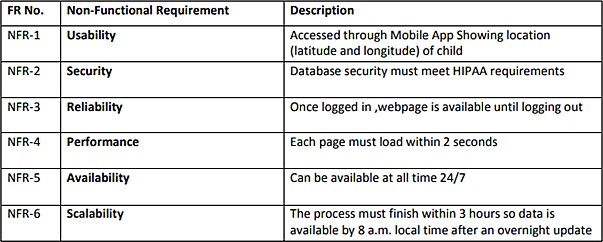


# REQUIREMENT ANALYSIS

## Functional Requirements

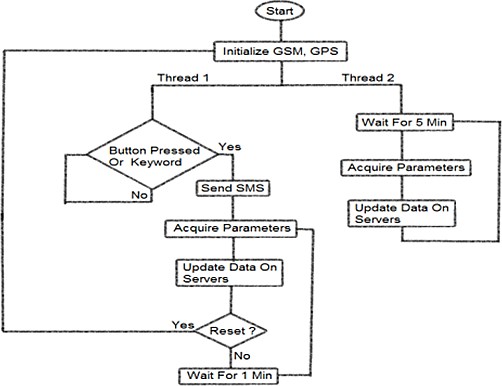


* 1. **Non- Functional Requirements**



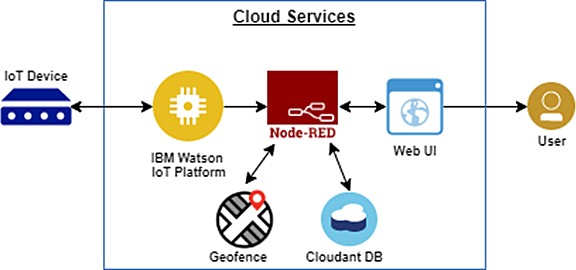
## PROJECT DESIGN

* 1. **Data Flow Diagrams**

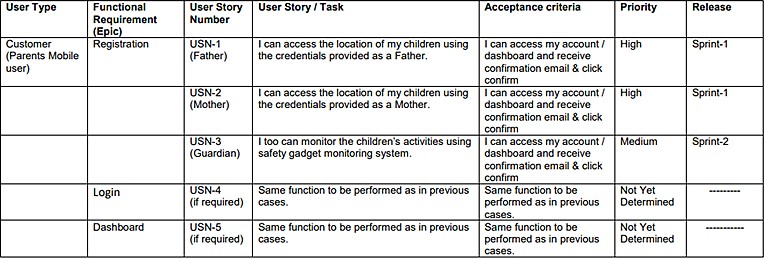


## Solution & Technical Architecture

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

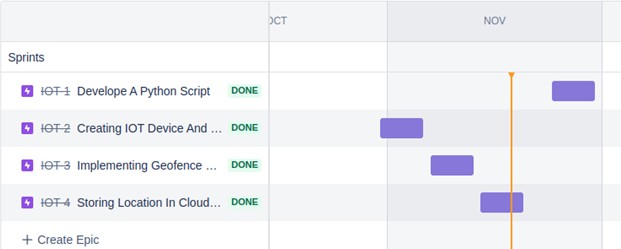


## User Stories



1. **PROJECT PLANNING & SCHEDULING**

## Sprint Planning & Estimation

* 1. **Sprint Delivery Schedule**
  2. **Reports from JIRA**

# 7.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.

# 10.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.

# 11.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.

# 12.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:

https://github.com/IBM-EPBL/IBM-Project-4491-1658733535

## Project Demo:

**https://drive.google.com/file/d/1wmEh3v5Ok2OGdOKkC2v5DXNad Qcha8KI/view?usp=share\_link**