IOT BASED SAFETY GADGETS FOR CHILD SAFETY MONITORING AND NOTIFICATION

1.INTRODUCTION

1.1PROJECT OVERVIEW:

More families are now spending time on work and social duties, hence away from their children. This causes increased concerns towards their safety and whereabouts, and has made keeping a track of their activities quite challenging. Crimes against children are increasing Year on Year. According to a study, roughly 60,000 children go missing in India every year. There is an assumption that every 10 minutes, a child goes missing. Mumbai and Delhi have the highest rate when compared to other metro cities. With the lack of availability of affordable child monitoring systems it is hard to monitor the whereabouts of Children. Safety of children is very critical since children cannot protect themselves. A momentary lack in parental supervision should be combated with an appropriate IT solution in context. Therefore, it is necessary for the proposed system to alert the parents when the child walks too far away and/or outside the "circle of safety" when they are away. The already existing system has some issues such as, it requires network connectivity, less accuracy and high-speed data connection. Time delay in video streaming also occur through the server. To overcome these issues we can access the system without internet and using high-speed server transmission.

1.2PURPOSE:

Crimes against children are increasing Year on Year. According to a study, roughly 60,000 children go missing in India every year. There is an assumption that every 10 minutes, a child goes missing. With the lack of availability of affordable child monitoring systems it is hard to monitor the whereabouts of Children. Safety of children is very critical since children cannot protect themselves. Therefore, it is necessary for the proposed system to alert the parents when the child walks too far away and/or outside the "circle of safety" when they are away. The already existing system has some issues such as, it requires network connectivity, less accuracy and high-speed data connection. Time delay in video streaming also occur through the server. To overcome these issues we can access the system without internet and using high-speed server transmission.

The main theme of this work is to develop a child safety device which helps the parents to monitor their children when they are not with them. The device consists of temperature sensor, respiratory rate sensor, pulse rate detection sensor and GPS. When the collected values from the sensors exceed the threshold, the notification will be send to their parents mail id. So that, the parents get alerted and they can able to see the location of the children.

2.LITERATURE SURVEY

2.2REFERENCES:

1.Child Monitoring and Safety System Using WSN and IoT Technology by Poonkuzhlai in 2021.

2.IoT-based Child Security Monitoring System by Lai Yi Heng in 2021.

3. IoT Based Smart Gadget for Child Safety and Tracking by N.Manjunatha in 2020.

4. Smart IOT device for child safety and tracking by M. Nandini Priyanka in Design and 2019.

5.Development of Child Abuse Detecting System by Mariam Khan in 2019.

2.3 PROBLEM SOLUTION:

There is an assumption that every 10 minutes, a child goes missing. Mumbai and Delhi have the highest rate when compared to other metro cities. With the lack of availability of affordable child monitoring systems it is hard to monitor the whereabouts of Children. Safety of children is very critical since children cannot protect themselves. A momentary lack in parental supervision should be combated with an appropriate IT solution in context. Therefore, it is necessary for the proposed system to alert the parents when the child walks too far away and/or outside the "circle of safety" when they are away. The above existing system has these disadvantages 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 .To overcome these issues can be overcome by using Zigbee concept or accessing the system without internet and using high-speed server transmission.

3.IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS:

An empathy map is a template that organizes a user's behaviours and feelings to create a sense of empathy between the user and your team. The empathy map represents a principal user and helps teams better understand their motivations,

concerns, and user experience .Empathy mapping is a simple yet effective [workshop](#) that can be conducted with a variety of different users in mind, anywhere from stakeholders, individual use cases, or entire teams of people. It can be conducted by many different teams such as design teams, sales, product development or [customer service](#). Essentially, it is an exercise that seeks to get inside the head of the customer as they interact with your product/service. While the main importance of an empathy map is creating empathy between you and the user, there are some other important facets of using one that offer different benefits to your team. Creating an empathy map takes many factors into consideration in relation to the customer's overall experience. These could be the specific problems they handle, how they use the product/service within a larger team, and who really experiences the brunt of the problem .These details are important to creating a holistic view of their experience but also important because they illuminate the problem in the mind of your team. This is equally as important and helps build an overall understanding of how users interact with your product/service.
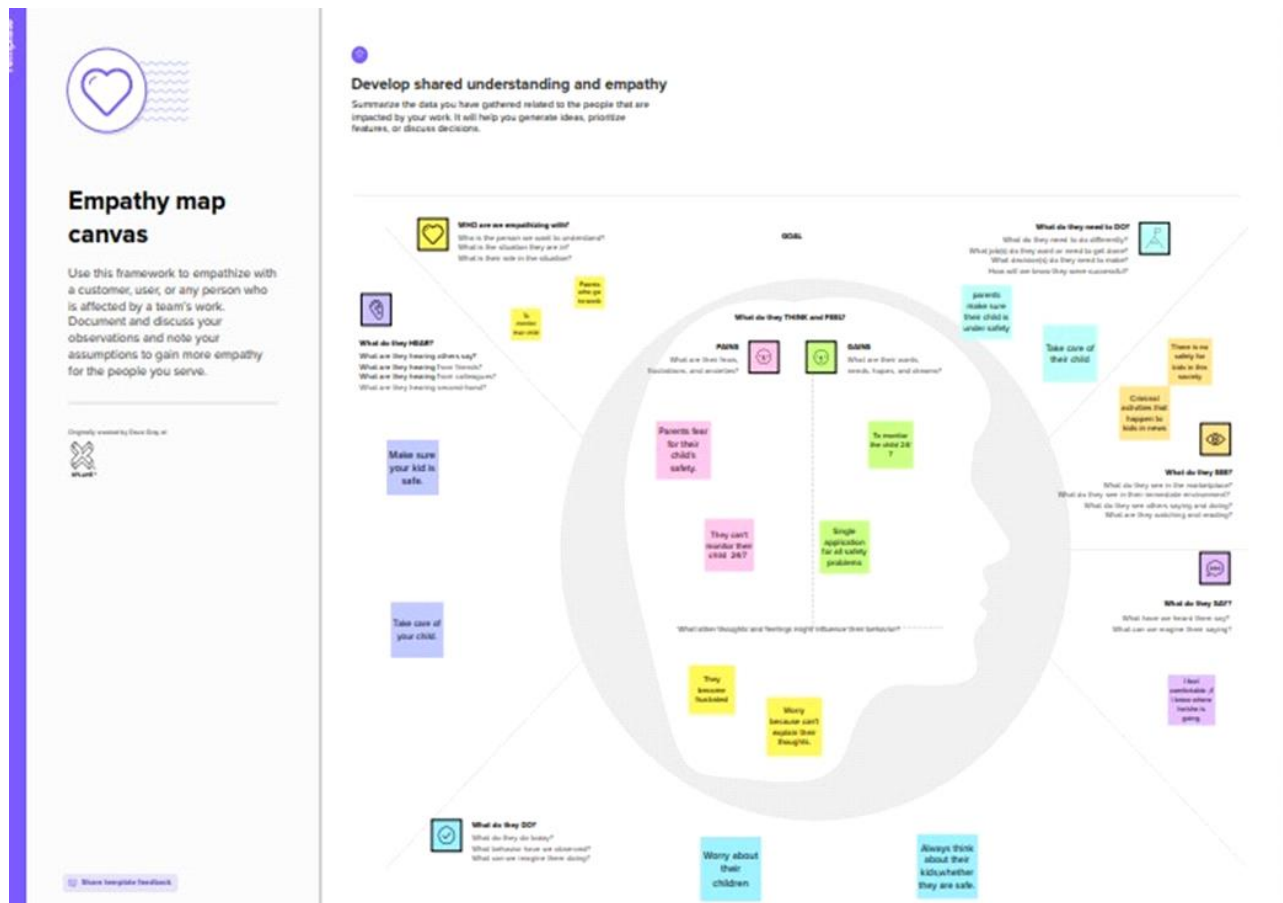
3.2 IDEATION & BRAINSTORMING:

Ideation is often closely related to the practice of brainstorming, a specific technique that is utilized to generate new ideas. A principal difference between ideation and brainstorming is that **ideation is commonly more thought of as being an individual pursuit, while brainstorming is almost always a group activity**.

Step 2: Brainstorming, Idea clustering and Clustermapping

Step 3: Idea Prioritization

3.4 PROPOSED SOLUTION:

Proposed Solution means **the technical solution to be provided by the Implementation agency in response to the requirements and the objectives of the Project**. Sample 1Sample 2. Proposed Solution means the Proposed System with modifications that meet the Agency's requirements as set forth in this RFP. The main goal of presenting a business proposal is to **provide solution to a problem faced by a potential buyer**. This section should be as comprehensive as possible, and able to address all the needs that you have pointed in the first section.

S.N0	Parameter	Description
1.	Problem Statement (Problem to be solved)	More families are now spending time on work and social duties, hence away from their children. This causes increased concerns towards their safety andwhereabouts, and has made keeping a track of their activitiesquite challenging. Crimes againstchildren are increasing Year on Year.To overcome these issueswe can access the system without internet and using high- speed server transmission.
2.	Idea / Solution description	The main theme of this work isto develop a child safety devicewhich helps the parents to monitor their children when they are not with them. The device consists of temperaturesensor, respiratory rate sensor,pulse rate detection sensor and GPS. So that, the parents get alerted and they can able to see the location of the children

3.	Novelty / Uniqueness	This scenario not involves by adults only, but also happen to children. Some parents do not have the privilege to send or fetch their children at school. Soby the of this system parents can received information if anything happen to their children such as accidents or involved in criminals, the notification is to the parents through their mail id at the instant time.
4.	Social Impact / Customer Satisfaction	Every parent is worried about their children's well-being and safety, often staying awake lateat night for taking care of them.This will help parents to know very fast about their children. This inclusion of technology will make the parents very happy.
5.	Business Model (Revenue Model)	. The information indicating children's status, along with reference values will be sent to parents" devices through mail id. If children's actual data is notwithin the range of reference value, alert notification and some suggestions will be sent toparents' devices. Also, when children leave geofences, notification will be sent to parents' devices.
6.	Scalability of the Solution	This project is very much

		efficient because it is based onIOT. As the whole process is

		going to be controlled by technology, there will be much less probability of error . As we use GPS tracking system, the location of the children can also be tracked. By using this system we can easily find ,whether their children are far away from the parents location.

3.4 PROBLEM SOLUTIOM FIT:

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1. CUSTOMER SEGMENT(S)	CS

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) **CS**
Who is your customer?
i.e. working parents of 0-5 y.o. kids

Parents of the children are our customer

6. CUSTOMER CONSTRAINTS **CC**
What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

Our project will reduce the power,cost with available devices.

5. AVAILABLE SOLUTIONS **AS**
Which solutions are available to the customers when they face the problem
or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

The solution is that the notification is sent to parents mail id .

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS **J&P**
Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

The notification is sent to the parents through their mail id.

9. PROBLEM ROOT CAUSE **RC**
What is the real reason that this problem exists?
What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

Because of the change in regulation.

7. BEHAVIOUR **BE**
What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

Customer is free with stress

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS **TR**
What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

Reading about a more efficient solution in the news.

4. EMOTIONS: BEFORE / AFTER **EM**
How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

They will feel a lot when their child was lost.

10. YOUR SOLUTION **SL**
If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

Our solution is that the notification is sent to parents mail id.

8.CHANNELS of BEHAVIOUR **CH**
8.1 ONLINE
What kind of actions do customers take online? Extract online channels from #7

8.2 OFFLINE
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

ONLINE:
    Control your kids' access to adult material and help protect them from Internet predators.
OFFLINE:
    Mand asks respondents some predetermined questions while other being asked are not planned in advanced.

Identify strong TR & EM

4.REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT:

FR No.	Functional Requirement	Sub Requirement (Story / Sub-Task)

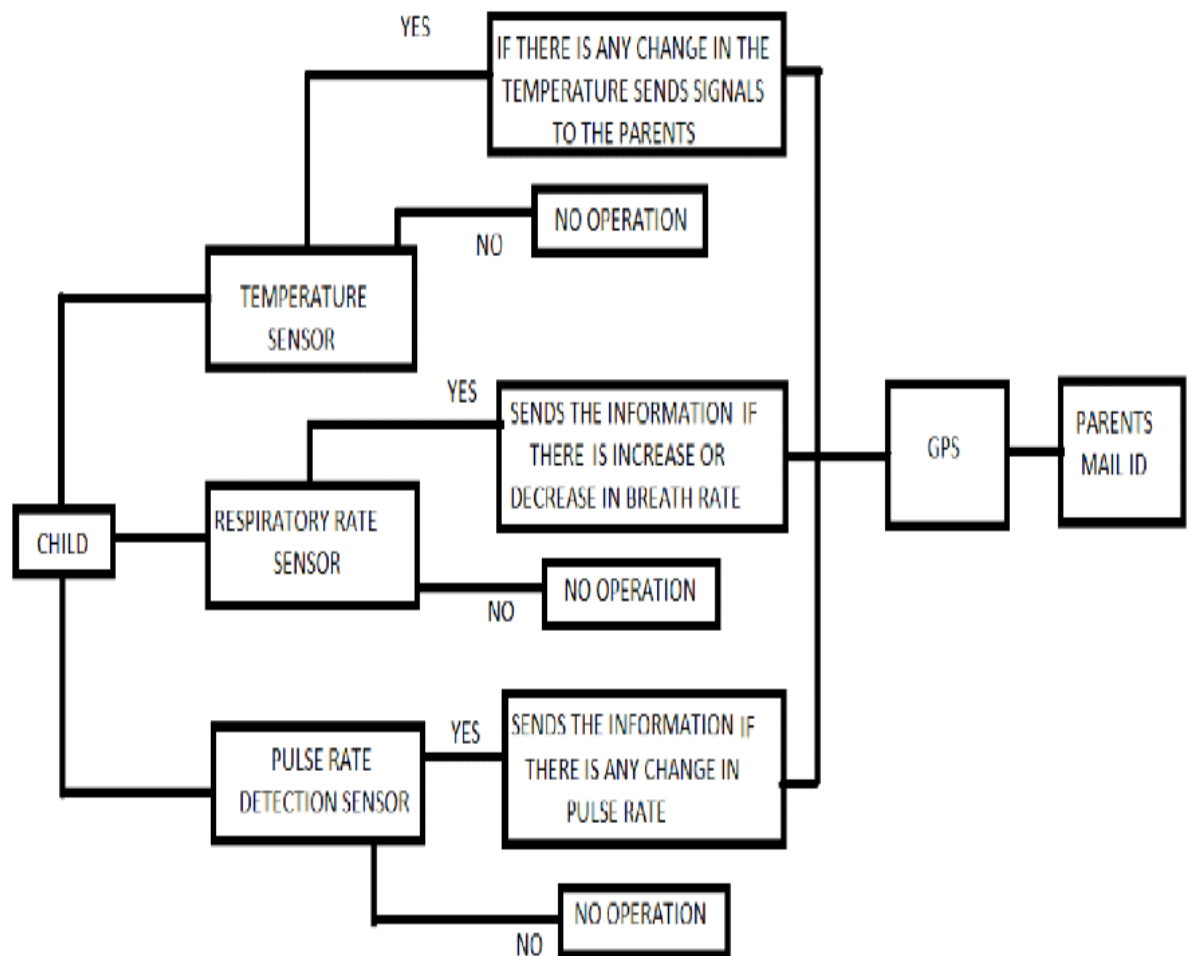|	(Epic)	
FR-1	User Registration	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	Temperature sensor	If the temperature of the child exceeds the threshold, then an alert will be sent to parents mail.id.
FR-4	Respiratory Rate sensor	If the respiratory rate of the child exceeds the threshold, then an alert will be sent to parents mail.id.
FR-5	Pulse Rate detection	If the pulse of the child exceeds the threshold, then an alert will be sent to parents mail.id.
FR-6	GPS	The parents can detect their child location.

4.2 Non-functional Requirements:

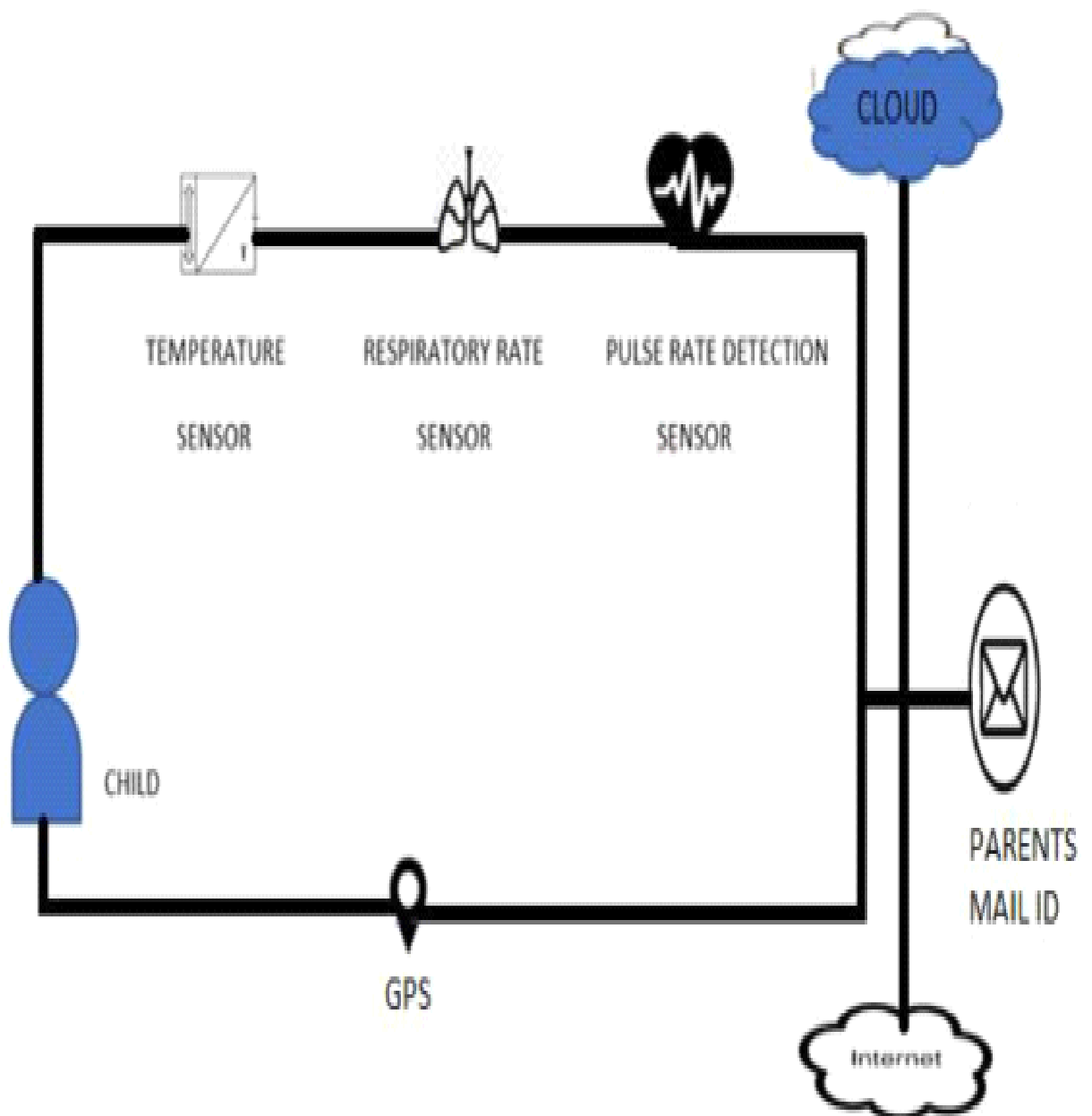| FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	This is used for child safety via mail id.
NFR-2	**Security**	This is used to secure their kids.
NFR-3	**Reliability**	The parents can save their children from danger.
NFR-4	**Performance**	It sends notification to the parents when their child is in critical condition.
NFR-5	**Availability**	Through the development of the child safety, the parents can manage their kids.

NFR-6	Scalability	The project is very much efficient because it is based on IOT.

5.PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS:

YES

IF THERE IS ANY CHANGE IN THE TEMPERATURE SENDS SIGNALS TO THE PARENTS

NO OPERATION

NO

TEMPERATURE SENSOR

YES

SENDS THE INFORMATION IF THERE IS INCREASE OR DECREASE IN BREATH RATE

GPS

PARENTS MAIL ID

CHILD

RESPIRATORY RATE SENSOR

NO OPERATION

NO

PULSE RATE DETECTION SENSOR

YES

SENDS THE INFORMATION IF THERE IS ANY CHANGE IN PULSE RATE

NO OPERATION

NO

5.2 SOLUTION & TECHNICAL ARCHITECTURE:

CLOUD

TEMPERATURE
SENSOR

RESPIRATORY RATE
SENSOR

PULSE RATE DETECTION
SENSOR

CHILD

GPS

PARENTS
MAIL ID

Internet

5.3 USER STORIES:

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Gmail	I can receive verification code and invitation	Medium	Sprint-1
Administrator	Login	USN-4	As a user, I can log into the application by entering email & password	I can login to my account	High	Sprint-1
Customer Service	User Data	USN-5	Ask for normal range of temperature, pulse rate and respiratory rate	I am adding the normal temperature, pulse rate and respiratory rate	High	Sprint-1
Customer	Temperature Sensing	USN-6	Sensing the temperature of the child	I can able to receive the data about the temperature of the child	High	Sprint-2
Customer	Respiratory Rate Sensing	USN-7	Sensing the respiratory rate sensing of the child	I can able to receive the data about the breathing rate of the child	High	Sprint-2
Customer	Pulse Rate Sensing	USN-8	Sensing the pulse rate of the child	I can able to receive the data about the pulse rate of the child	High	Sprint-2
Customer	Location fix	USN-9	Parents can be able to receive the location of the child	I can able to know the location of where the child is present	High	Sprint-3

6. PROJECT PLANNING & SCHEDULING

6.1 SPRINT PLANNING AND ESTIMATION:

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-1	Login	USN-2	As a user can login using the email and password.	2	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-1		USN-3	Create the IBM Cloud services which are being used in this project.	6	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-1		USN-4	Configure the IBM Cloud services which are being used in completing this project.	4	Medium	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-2		USN-5	IBM Watson IoT platform acts as the mediator to connect the web application to IoT devices, so create the IBM Watson IoT platform.	5	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-2		USN-6	In order to connect the IoT device to the IBM cloud, create a device in the IBM Watson IoT platform and get the device credentials.	4	Medium	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-2		USN-7	Configure the connection security and create API keys that are used in the Node-RED service for accessing the IBM IoT Platform.	10	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-3		USN-8	To create a web application create a Node-RED service.	10	High	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-3		USN-9	Launch the cloudant DB and create a database to store the image URL	4	Medium	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-4		USN-10	Create a cloud object storage service, create a bucket to store the images, and configure the bucket settings.	5	Medium	Nithya Darshini K.S Prasanna J.P Sumitha A.J Abiram R.N
Sprint-4		USN-11	Develop a python script.	6	Medium	Nithya Darshini K.S

6.2 SPRINT DELIVERY SCHEDULE:

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
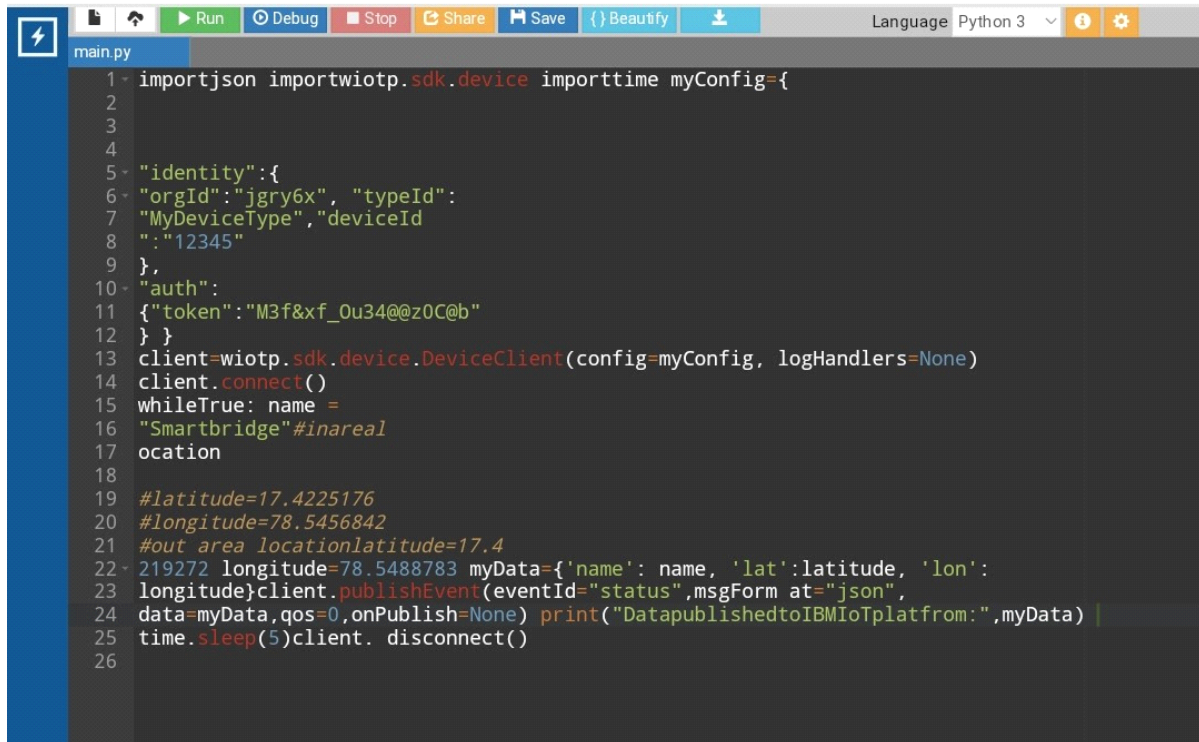
Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{sprint\ duration}{velocity} = \frac{20}{10} = 2$$

7.CODING AND SOLUTIONING

7.1 FEATURE 1:

```python
importjson importwiotp.sdk.device importtime myConfig={


    "identity":{
    "orgId":"jgry6x", "typeId":
    "MyDeviceType","deviceId
    ":"12345"
    },
    "auth":
    {"token":"M3f&xf_Ou34@@z0C@b"
    } }
    client=wiotp.sdk.device.DeviceClient(config=myConfig, logHandlers=None)
    client.connect()
    whileTrue: name =
    "Smartbridge"#inareal
    ocation

    #latitude=17.4225176
    #longitude=78.5456842
    #out area locationlatitude=17.4
    219272 longitude=78.5488783 myData={'name': name, 'lat':latitude, 'lon':
    longitude}client.publishEvent(eventId="status",msgForm at="json",
    data=myData,qos=0,onPublish=None) print("DatapublishedtoIBMIoTplatfrom:",myData)
    time.sleep(5)client. disconnect()
```



```
File "main.py", line 1
    importjson importwiotp.sdk.device importtime myConfig={
             ^
SyntaxError: invalid syntax


...Program finished with exit code 1
Press ENTER to exit console.
```

7.2 FEATURE 2

Child safety device is know for The LinkIt ONE board is an open source platform. 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 wearable's and IoT devices. The board consists of ARM7 EJ-S and the clock speed is 260MHz.

A SIM and SD card slots are provided on the board itself. For the audio purpose a headset slot is also provided. The link it one is a robust development board for the hardware and also used for industrial applications.

Different components such as Temperature sensor, Touch sensor, heartbeat sensor, GSM, GPS modules and serial camera are connected to the LinkIt ONE Board along with builtinGSM, GPS modules.

Lithium ion battery is used as DC supply required to energize it. A rechargeable battery can also be used for the above purpose. Temperature sensor block is shown in figure 1; temperature is one of the most commonly measured variables and is therefore there are many ways of sensing temperature.

For measuring body temperature of the child LM35 temperature sensor is used. The touch sensor has three main components on the circuit board.

Depends upon the resistant value of the potentiometer the amplifier amplifies the signal and sends the signal to analogue output of the module.

The third component is comparator, when the signal falls under a specific value it is used to switch the output. A serial camera is used for the purpose of taking snapshot of the area surrounding the child.

A miniature TTL serial JPEG camera is used because it is the best one for the purpose of wearable type. The camera can snap the images of different sizes of pixels and those images are pre-compressed into JPEG images.

The heartbeat sensor is used in the proposed system for measuring the pulse rate. 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. GSM standard used here is GSM900. They mainly differ's based on bandwidth and RF carrier frequency.

GSM network consists of mobile station, Base station subsystem network and operation subsystem. The GPS module is provided for identifying the location of the child. GPS module receives the signals from satellites which are located miles away.

The latitude and longitude of the location can be identified by the GPS module. The Link it ONE board consists of micro SD/SIM combo.

The device sends the monitored parameters data such as Temperature, touch and pulse rate to cloud. When there are any abnormalities in temperature or touch or pulse rate readings, a SMS is sent to the parent/caretaker mobile phone immediately.

After sending SMS the serial camera captures the International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-8 Issue-8 June, 2019 1793

Published By: Blue Eyes Intelligence Engineering Retrieval Number H6836058719/19©BEIESP & Sciences Publication snapshot in real time and is stored in SD card. From the SD card through the GSM module an MMS is sent to the particular mobile phone.

7.3 DATABASE SCHEMA:

Child Health Monitoring Using Sensor Technology is a framework to support a unique health care for children. Using this framework the parents and other related persons who take care the child's and keep intense monitoring on the children's physical health condition from anywhere.

This framework also can be used to reduce or prevent things that can be harmful for children's health, grow, and development progress. The CHC (Child Health Care) will be provides many features and such as notification and monitoring system to a professional health care of school as well as parent, based on the children (student) record.

This framework will improve the children's health, grow and development progress.

With the rapid development of urbanization and industrialization in China, more and more children are studying and living in cities, which presents some safety challenges.

To help guardians better monitor their children, the authors present Child Guard, a child safety system based on mobile devices. Child Guard provides an in-path safety function that monitors the real-time movement of children walking on the road.

It also provides a region safety function that sets designated areas in which children can play. Children can be warned about potential risks, and their guardians can be informed of location or activity abnormities. Experiments show that Child Guard has higher positioning accuracy and better real-time communication than similar systems. This article is part of a special issue on cyber security.

To help guardians better monitor their children, the authors present Child Guard, a child safety system based on mobile devices. Child Guard provides an in-path safety function that monitors the real-time movement of children walking on the road. It also provides a region safety function that sets designated areas in which children can play.

8.TESTING

8.1 TEST CASES:

Today in introduce universe of advanced innovation and worldwide figuring each individual is associated with each other in number of ways. In current worldwide figuring world, the youngsters and ladies provocation, chain snatchings, hijacking, lewd activities, eve prodding, and so forth are expanded step by step, winding up more perilous and powerless.

At the point when these risky circumstances happen there must be an inclining innovation to be agreeable to deal with. So we are proposing a framework that takes a shot at the debate of youngsters utilizing IOT.

In this venture we proposed a gadget which is incorporated with different gadgets, containing wearable "Action Tracker Wrist Band" which is modified with all the required information which incorporates the conduct of human Health is fundamental need and it is human right to get quality Health Care.

Nowadays India is facing many health issues because of less resource. This review paper presents the idea of solving health issues using latest technology, Internet of Things. It presents the architectural review of smart health care system using Internet of Things which is aimed to provide Quality Health Care to everyone.

Using this system architecture, patients' body parameters can be measure in real time. Sensors collects patients body parameters and transfers that data to Arduino Uno which further transfer that data to cloud with the help of WiFi module.

This data is stored into Thingspeak database server which manages data and provides accessibility. User can view this data with the help of Android App.

This work mainly focuses on alerting the individuals arround baby so as to locate the baby in safer zone before arrival of the parent. Among all the available wearable devices focusing on the conditions to provide the locality, action and so forth of the child to the parents via wireless Wi-Fi and Bluetooth, Bluetooth and Wi-Fi (wireless fidelity)becomes a very inconsistent resource to the communication.

9.RESULTS

9.1 PERFORMANCE METRICS:

Performance metrics are defined as figures and data representative of an organization's actions, abilities, and overall quality.

Performance measurement is the process of collecting, analyzing and/or reporting information regarding the performance of an individual, group, organization, system or component.

Definitions of performance measurement tend to be predicated upon an assumption about why the performance is being measured.
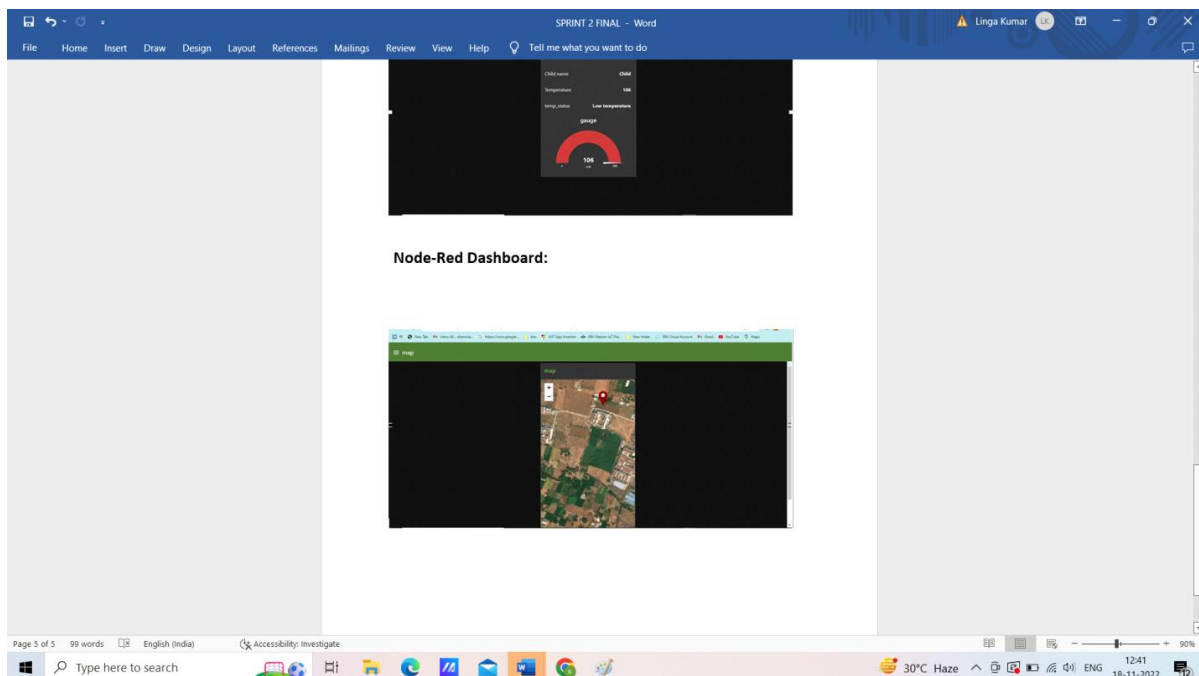
13.APPENDIX

import time import sys

import ibmiotf.application import ibmiotf.device import random

#Provide your IBM Watson Device Credentials organization = "zwx6lb" deviceType="nodeMCU" deviceId = "12345678" authMethod = "token" authToken = "12345678"
#api key {a-illza1-mbdxqo6z0s}

#api token {zSYzISuAWF&F_x7GkT}

```
try:

        deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-method":
authMethod, "auth-token": authToken} deviceCli = ibmiotf.device.Client(deviceOptions)

#............................................ except Exception as e:

print("Caught exception connecting device: %s" % str(e)) sys.exit()


# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type

"greeting" 10 times print("power on ") print("checking connection to waston iot...")
time.sleep(2) deviceCli.connect()

print("dear user ... welcome to IBM-IOT ")

print("i can provide your children live location and temperature ") print()

name=str(input("enter your child name:")) while True:




temperature=random.randint(20,50)#random temperature for your child
latitude=random.uniform(10.781377,10.78643)#random latitude for your child
longitude=random.uniform(79.129113,79.134014)#random longitude for your child a="Child
inside the geofence" b=" Child outside the geofence" c="High temperature" d="Low
temperature" x={'your_child_Zone':a} y={'your_child_Zone':b} z={'temp_condition':c}
w={'temp_condition':d}

data = { 'temp' : temperature, 'lat': latitude,'lon':longitude,'name':name }

#print data def myOnPublishCallback(): print ("Published Temperature = %s C" % temperature,
"latitude = %s %%" % latitude,
"longitude = %s %%" % longitude, "to IBM Watson") print("\n")

success = deviceCli.publishEvent("IoTSensorgpsdata", "json", data, qos=0,

on_publish=myOnPublishCallback) if latitude>=10.78200 and latitude<=10.786000 and
longitude >=79.130000 and longitude

<=79.133000:
```

```python
        deviceCli.publishEvent("IoTSensorgpsdata","json",data=x,qos=0,on_publish=myOnPublishCallb
ack)


print(x) print("\n")

else:


deviceCli.publishEvent("IoTSensorgpsdata","json",data=y,qos=0,on_publish=myOnPublishCallb
ack)


print(y) print("\n")

if (temperature>35):


deviceCli.publishEvent("IoTSensorgpsdata","json",data=z,qos=0,on_publish=myOnPublishCallb
ack)


print(c) print("\n")

else:


deviceCli.publishEvent("IoTSensorgpsdata","json",data=w,qos=0,on_publish=myOnPublishCall
back)


print(d)

print("\n")


if not success: print("Not connected to IoTF") print("\n")

time.sleep(3)
```

10. ADVANTAGES & DISADVANTAGES:

ADVANTAGES:

 ⬚ 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.

 ⬚ The for child safety and tracking , help the parents to locate and monitor their children.

 ⬚ The child safety wearable device can act as a smart device. It provides parents with the real-time location, surrounding temperature for their child's surroundings and the ability to locate their child or alert bystanders in acting to rescue or comfort the child.

 ⬚ Through IoT based device ,the child safety can be ensured and crime rate will be reduced.

 ⬚ These wearable devices are used for tracking information on real time basis. They have motion sensors that take the snapshot of your day to day activity and sync them.

DISADVANTAGES:

It has less number of features such as it enables the tracking of the child's location by temperature and pulse respiratory rate,etc.

 This device cannot be used in rural areas.

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

 It can be difficult to detect when network signal is not reachable/weak/when the smart gadget moves outside the boundary range.

 The wearable device using E-Textile specifically with three sensors (MAX30100, GSR and FSR) increased the acuracy of detecting unusual and alarming situations.

 It is difficult to monitor when there occurs any hindrance to satellite.

12. FUTURE SCOPE:

 The system accuracy can also be improved by increasing the trustworthiness of the device to avoid any discrepancies, as in medical and healthcare, a minute error may cost a life. In addition we can also add different zones such as bus section, along with wireless camera which ensures the safety.

 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.

 The future scope of the work is to implement the IoT device which ensures the complete solution for child safety problems.

 This system can be further enhanced by installation of mini-camera inside smart gadget for better security so that live footage can be seen on parental phone during panic situations.The system can be modified by installation of small solar panels for charging the battery of smart gadget to gain maximum battery backup.

The future work is that the GSM mechanizations implemented in the school belt of the children. This belt has an integrated the feature of Auto Photo Capture Activity and sending that to the parent's Emails. The complaint can be raised to the nearby police station about the child when being kidnapped. In addition to the usage of location tracking facility in the proposed system our project also provides the security with the highest accuracy and safety to overall systems being used.

 Child GPS Tracking System helps parents for monitor their children and ensures child's safety.Some of the best works implemented in past relies on SMS based tracking which is not helpful to get an accurate location.

 The hinderance and network issues can be overcome by using Zigbee concept or accessing the system without internet and using high-speed server transmission.

11.CONCLUTION

This project is very much efficient because it is based on IOT.As the whole process is going to be controlled by technology, therewill be much less probability of error . The parents can easily monitor their children safely from their place itself. As we use GPS tracking system, the location of the children can also be tracked. By using this system we can easily find ,whether their children are far away from the parents location.