TEAM ID: PNT2022TMID33862

# INTERNET OF THINGS- SAFETY GADGETS FOR CHILD SAFETY MONITORING AND p NOTIFICATION

***Submitted by***

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**in partial fulfillment for the award of the degree**

**of**

**BACHELOR OF ENGININEERING**

in

**ELECTRONICS AND COMMUNICATION**

**GOVERNMENT COLLEGE OF ENGINEERING, TIRUNELVELI**

INTRODUCTION

PROJECT OVERVIEW

The project overview of this system is that the parent can send a message to the GSM module, according to the message information the GSM module reply back with particular details of the children. The location can be seen on the Google map. When a particular child is facing an emergency situation, device button should be pressed so that the device captures the image along with the user information to the enrolled mobile numbers. The life of the child can be saved within no time. In the children point of view GPS, GPRS and GSM are used to monitor the speed and location tracking purpose. The system is fixed on the bus or car or in any vehicle so that the vehicle is going on routine route or not can be identified by the GPS tracker, the speed of the bus can also be extracted.

PURPOSE:

The overall percentage of child abusements 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 abusements, 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 condition and aims 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 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. .

LITERATURE SURVEY

EXISTING PROBLEM

Basically, children cannot complain about abusements which they face in their daily life to their parents. They can’t even realize what actually happens to them at their age. It is also difficult for parents to identify their children are being abused. Since to prevent children before being attacked, an autonomous real-time monitoring system is necessary for every child out there. In this system, the collected values from every sensor like temperature sensor, pulse rate detection sensor, metal detection sensor, and the location value from GPS are used to detect the status of the child and alerts the respective guardians using GSM accordingly.

REFERENCE

ARTICLE 1 :

Design of Wearable Device for Child Safety

M Benisha, R Thandaiah Prabu, M Gowri, K Vishali, M Anisha, Ponmozhi Chezhiyan, C Jim Elliot
2021 Third International Conference on Intelligent Communication Technologies and Virtual Mobile Networks (ICICV), 1076-1080, 2021

Now-a-days attacks on children are increasing at an unprecedented rate and the victims are in dangerous conditions, where they are not allowed to contact the family members. The key idea planned in this research work is an advanced technology that offers “Smart Child Safety” for the children. Therefore, the awareness of this method is to send an SMS fromchildren's wear tool to their parent or guardian. In the prevailing structure, there is no monitoring method for child, it should create many problems for them and the no protection mechanism to protect the child from the misbehavior. In addition, there is no aware device for the child's protection; it must be completed by hand only. Thus, the planned method will be highly effective when compared to the other existing techniques in helping the victims. Moreover, it doesn't need any manual operation. This paper recommends a newfangled technology for child protection by using GSM so that the children will not feel abandoned while facing such social problems. The problems overawed here using Arduino UNO, GSM, sensors, MEMS, temperature and panic button by using IOT. In such case, Heartbeat Sensor track the best rate for children and sends the emergency message by using the GSM to save contacts. Such method is actually supportive for children in today's world. Hence, this provides a security to the children and secures the feeling of parents

ARTICLE 2:

COVID-SMD: CHILD OLDSTER VICTIM ILL DUMB-SAFETY MONITORING DEVICE

Mansi Kashyap, Shuchita Saxena, Kshitij Shinghal, Amit Saxena
International Journal of Advances in Engineering & Technology 13 (4), 123-130, 2020

Pablo Picasso quoted" Without great solitude, no serious work is possible". COVID-19 the deadly widespread epidemic taught this that in desolation one can come up with a great idea and some out of the box suggestion or design. This paper presents such project that is made in solitariness due to the pandemic. Here a prototype is described for the frontline warriors of novel Corona virus. Besides this it would also be very helpful for monitoring of health, activities and tracking our loved ones. The prototype is named as COVID-SMD and abbreviated as Child Oldster Victim Ill Dumb Safety Monitoring Device. It consists of five modules which would tell us about the temperature, surrounding light, fall, removal of the device and emergency situation. It would monitor the temperature of the wearer, will keep a track of location, alert about the fall of the person, detect if person is in dark and will also help your loved ones in their panic situation. It will send alert messages to the phone number saved in the source code. This device would be productive for both parents who want to monitor their kiddos, as well as for children to supervise their golden age geriatric parents. It would be essential for the person suffering from various diseases such as dementia (short term and long-term memory loss), autism (nervous breakdown), Alzheimer (loss of functioning of brain). At present time of Pandemic Safety and monitoring of children, elderly people, dumb people handicapped, patients where social distancing is very important

ARTICLE 3:

Advanced Child Tracking Monitoring System

G Praveen Kumar

This project is based on safety preventive solutions, provided in school's campus to avoid child abuse, child molestation, and child bullying, medical emergencies. We have come up with an innovative idea to prevent all this, it's a wearable devise which is continuously read by our sensors and find out if there is any emergency. It's a smart software is triggers soft alerts to the command center people stating that so and so kid is with xyz person in an isolated place. Rescue team check the scene and stops if anything is wrong is happening. Every person in the campus should wear the devise (teaching staff and non-teaching staff) visitors will be given the devise at the time of entry to the campus.

ARTICLE 4:

How can parents support children's internet safety?

Andrea Duerager, Sonia Livingstone

EU Kids online, 2012

Given the Safer Internet Day 2012 theme of Connecting Generations, we ask whether, instead of imposing restrictions, parents can support their child's internet safety by sharing a positive experience of internet use with them. An analysis of parental mediation in the EU Kids Online survey of 25,142 9-16 year olds in 25 countries shows that restrictive mediation reduces online risks, but it also reduces their online opportunities and skills. The new analysis in this report shows that when parents actively mediate their child's internet use, this too is associated with lower risk and, most important, lower harm. However, parental active mediation of use is linked to more (not fewer) online activities and skills

ARTICLE 5:

14.99.188.242

Enhanced Child Activity Monitoring Tool

P Karhik

Enhanced child activity monitoring tool by JAG & WYT solutions is a child safety product for schools, to track the child in real-time during school hours. Decreasing weight of labor and giving guardian's alleviation that their kid is sheltered. Our Software Cum Hardware display is intended to give the correct area of tyke inside the campus.it help the youngster to call for help or the delicate cautions if there's anything suspicious around the kid, say if the kid ought to be in class and is in some detached place the product triggers the alert expressing that the kid is in disconnected place with XYZ individual protect group checks what is the scene and safe watches the place Every person who works in campus teaching and non-teaching staff, children, and any other person who comes inside the campus should wear the devise. It helps finding who is there in which place and analyze the need for help and prevent child abuse, medical emergency, child bullying etc.,

in order to give a safe educational environment. There may be lot of solutions today, but they are not effective since camera can only record the incident and cannot prevent them, GSM based can only alert the parents and does not help in prevention, RFID not applicable as it does not help in tracking the child, GPS/GPRS - Not effective as it has limitations in tracking the child within enclosures, Our product helps in proving this solutions and give a safer environment to the students.

ARTICLE 6:

ENHANCED CHILD ACTIVITY MONITORING TOOL 1NH16MCA72 Department of Master of Computer Applications, NHCE, Bangalore 2017-2018 2 Child safety is the most significant component encouraged to develop and advanced technology in order to give a safer place. Lot of incidents forced to innovation and brings in new ways of safeguarding to provide secure life for child in campus. Parents lost their trust on security in schools and are not comfortable until the child resumed back to home safely.

ARTCLE 7:

Implementation of Child Safety Alert System in Automobiles

Eeda Srinavya, Maddula Bhaswitha, S Siva Vineeth, BK Priya

2021 2nd Global Conference for Advancement in Technology (GCAT), 1-6, 2021

Every year lot of children are passing away due to hyperthermia and coronary heart strokes. This is happening because the children are left inside the car unknowingly. Many incidents of such cases are increasing rapidly in the past few decades. These incidents are recognized as the automobile injuries and for this a research has been done to know more about the fat situations of the surroundings of such instances. By the research it is known that there are two elements which made the kids more liable to hyperthermia when compared to adults. A systematic rationalization about how this can be appeared that the children are left unknowingly by their parents in the vehicle can be identified with working memory, it builds up the pressure obstruction and impends to a particular interest. In past two years, 16 children of these cases in Italy and 53 children of these cases in US of infant hyperthermia because of abandonment in vehicles were perceived. These discoveries propose that instructive bundles and writing for guardians concerning auto insurance should incorporate such data about these threats of the heart stress, in fact such actions are unknowingly happened and not intentionally done. In triumph over these issues a prototype has been proposed by means of the child safety alert system.

ARTICLE 8:

Arkangel and Parental Surveillance: What are a Parent's Obligations?

Catherine Villanueva Gardner, Alexander Christian

Black Mirror and Philosophy: Dark Reflections, 151-159, 2019

“Archangel” explores the consequences of Marie's over-parenting of her daughter, Sara, through the use of a neural implant (the Archangel) that allows Marie to track (and block) Sara's experiences. In attempting to

fulfill her duty to protect Sara, Marie ultimately fails morally as a parent. What is fascinating is that different schools of philosophical thought – contemporary liberal philosophy, ancient Greek Aristotelian ethics, contemporary feminist ethics of care, and contemporary Wittgensteinian ethics – all reach the same conclusion about Marie's moral failure, while teasing out different strands of this failure.

ARTICLE 9:

Demystifying IoT security: An exhaustive survey on IoT vulnerabilities and a first empirical look on Internet-scale IoT exploitations

Nataliia Neshenko, Elias Bou-Harb, Jorge Crichigno, Georges Kaddoum, Nasir Ghani

IEEE Communications Surveys & Tutorials 21 (3), 2702-2733, 2019

The security issue impacting the Internet-of-Things (IoT) paradigm has recently attracted significant attention from the research community. To this end, several surveys were put forward addressing various IoT-centric topics, including intrusion detection systems, threat modeling, and emerging technologies. In contrast, in this paper, we exclusively focus on the ever-evolving IoT vulnerabilities. In this context, we initially provide a comprehensive classification of state-of-the-art surveys, which address various dimensions of the IoT paradigm. This aims at facilitating IoT research endeavors by amalgamating, comparing, and contrasting dispersed research contributions. Subsequently, we provide a unique taxonomy, which sheds the light on IoT vulnerabilities, their attack vectors, impacts on numerous security objectives, attacks which exploit such vulnerabilities, corresponding remediation methodologies and currently offered operational cyber security capabilities to infer and monitor such weaknesses. This aims at providing the reader with a multidimensional research perspective related to IoT vulnerabilities, including their technical details and consequences, which is postulated to be leveraged for remediation objectives. Additionally, motivated by the lack of empirical (and malicious) data related to the IoT paradigm, this paper also presents a first look on Internet-scale IoT exploitations by drawing upon more than 1.2 GB of macroscopic, passive measurements' data. This aims at practically highlighting the severity of the IoT problem, while providing operational situational awareness capabilities, which undoubtedly would aid in the mitigation task, at large. Insightful findings, inferences and outcomes in addition to open challenges and research problems are also disclosed in this paper, which we hope would pave the way for future research endeavors addressing theoretical and empirical aspects related to the imperative topic of IoT security.

ARTICLE 10:

Design and Implementation of Security Device for Patient Health Monitoring Systems

AK Sahu, NK Misra, D Kumar

IOP Conference Series: Materials Science and Engineering 1119 (1), 012003, 2021

In continuous upgrading world, humans believe in their self-worth. They have participation in every sector of life, but lives have become so vulnerable these days that the safety and security of their lives are one of the

burning questions about this pandemic corona virus disease. Considering all incidents and violation of rules do not spread against humanity this idea of a smart wristband safety device aligned with GPS and GSM modules, with temperature and pulse sensors came into consideration. During dangerous situations user just needs to press the SOS button fitted on the wristband, or the sensors will sense an increase in temperature or pulse rate and then automatically the message of user location tracking via GPS will be sent to the registered numbers through GSM. The main objective is for the device to be light weight and place the SOS switch in an easy accessible region, with additional sensors leaving no worse case possible.

ARTICLE 11:

Anatomy of threats to the internet of things

Imran Makhdoom, Mehran Abolhasan, Justin Lipman, Ren Ping Liu, Wei Ni

IEEE communications surveys & tutorials 21 (2), 1636-1675, 2018

The world is resorting to the Internet of Things (IoT) for ease of control and monitoring of smart devices. The ubiquitous use of IoT ranges from industrial control systems (ICS) to e-Health, e-Commerce, smart cities, supply chain management, smart cars, cyber physical systems (CPS), and a lot more. Such reliance on IoT is resulting in a significant amount of data to be generated, collected, processed, and analyzed. The big data analytics is no doubt beneficial for business development. However, at the same time, numerous threats to the availability and privacy of the user data, message, and device integrity, the vulnerability of IoT devices to malware attacks and the risk of physical compromise of devices pose a significant danger to the sustenance of IoT. This paper thus endeavors to highlight most of the known threats at various layers of the IoT architecture with a focus on the anatomy of malware attacks. We present a detailed attack methodology adopted by some of the most successful malware attacks on IoT, including ICS and CPS. We also deduce an attack strategy of a distributed denial of service attack through IoT botnet followed by requisite security measures. In the end, we propose a composite guideline for the development of an IoT security framework based on industry best practices and also highlight lessons learned, pitfalls and some open research challenges.

PROBLEM STATEMENT DEFINITION:

A smart IoT device for child safety and tracking is developed to help the parents to locate and monitor their children. The system is developed using LinkIt ONE board programmed in embedded C and interfaced with temperature, heartbeat, touch sensors and also GPS, GSM & digital camera

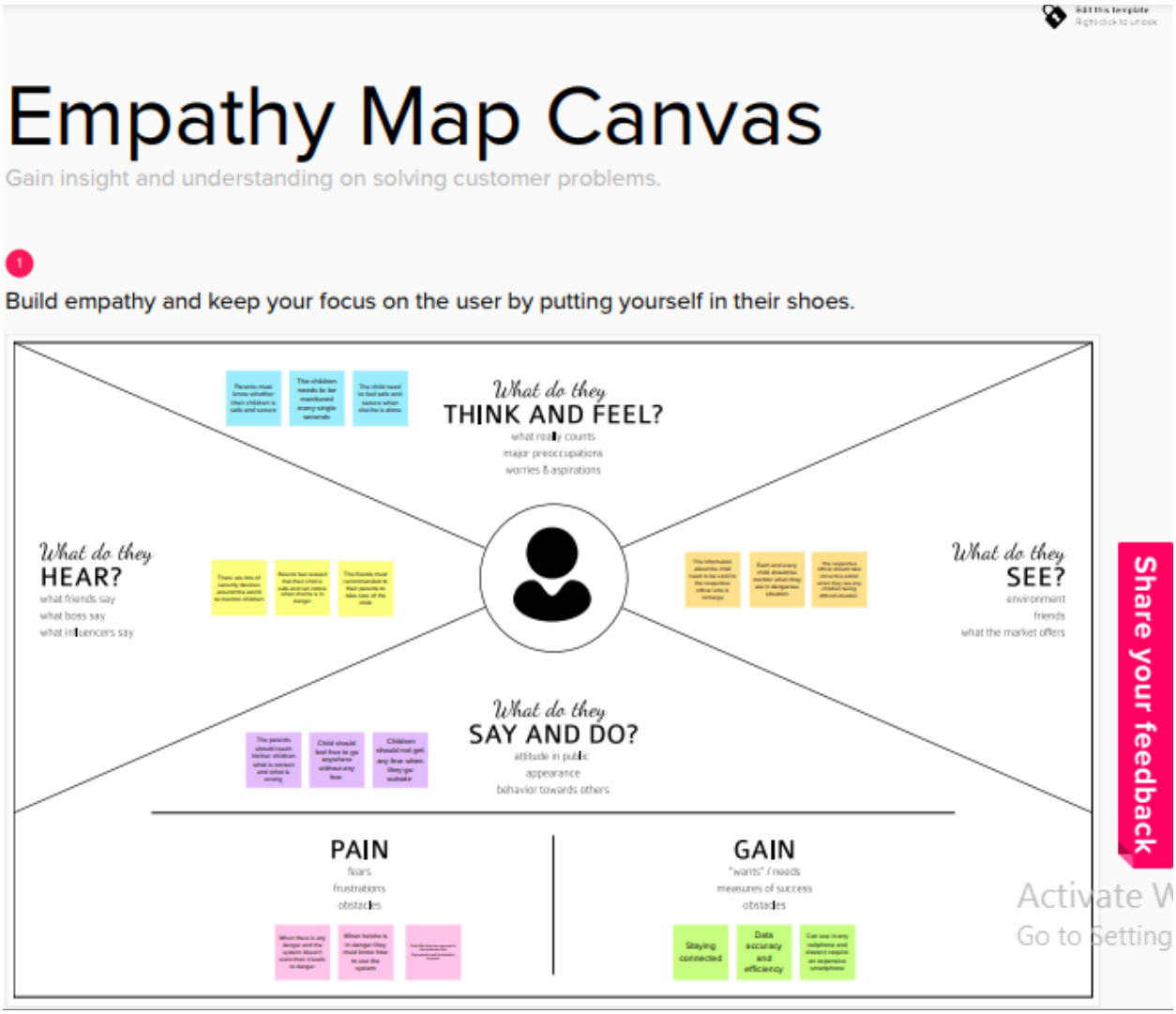
| | |
|---|---|
| What does the problem affect? | The overall percentage of child abusements filed nowadays in the world is about 80%, out of which 74% are girl children and the rest are |

| | |
|---|---|
| | 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 abusements, 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 condition and aims 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 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. |
| What are the boundaries of the problem? | IoT SAFE provides a common mechanism to secure IoT data communications using a highly trusted SIM, rather than using proprietary and potentially less trusted hardware secure elements implemented elsewhere within the device |
| What is the issue? | This system provides a tracking solution for the parent to keep tracking their child's location outdoors by using GPS as it allows them to determine the exact location of the child. It, therefore, helps to minimize this |

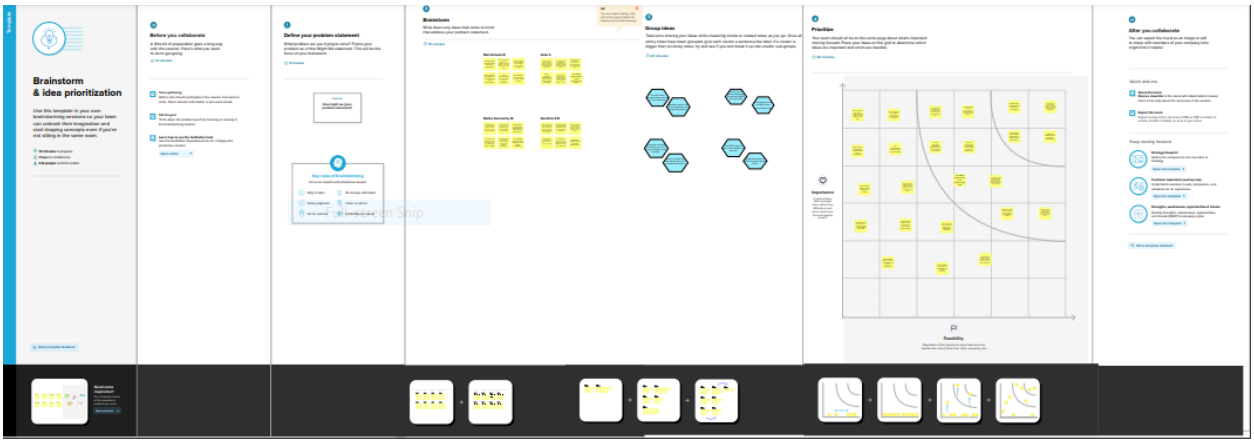
| | |
|---|---|
| | tragedy to reoccur in the future. |
| When does the issue occurs? | Like in other industries, supervisors can use wearable sensors to track miners' movements and the movements of machinery to avoid collisions. Remote control of machines can assist both with safety and efficiency, allowing supervisors to shut down machines that are not in use to prevent wasted fuel and other resources |
| Where is the issue occurring? | This system provides a tracking solution for the parent to keep tracking their child's location outdoors by using GPS as it allows them to determine the exact location of the child. It, therefore, helps to minimize this tragedy to reoccur in the future. |
| Why is it important that we fix problem? | This paper presents when the child enters the school parents receive the message that the child entered the school. When the child is in danger parents the longitude and latitude details via SMS. They can even track the exact locations of the child by knowing the latitude and longitude data collected and parent can register the complaint to the surrounding nearby place |

IDEATION & PROPOSED SOLUTION:

EMPATHY MAP CANVAS:




IDEATION AND BRAINSTORMING:

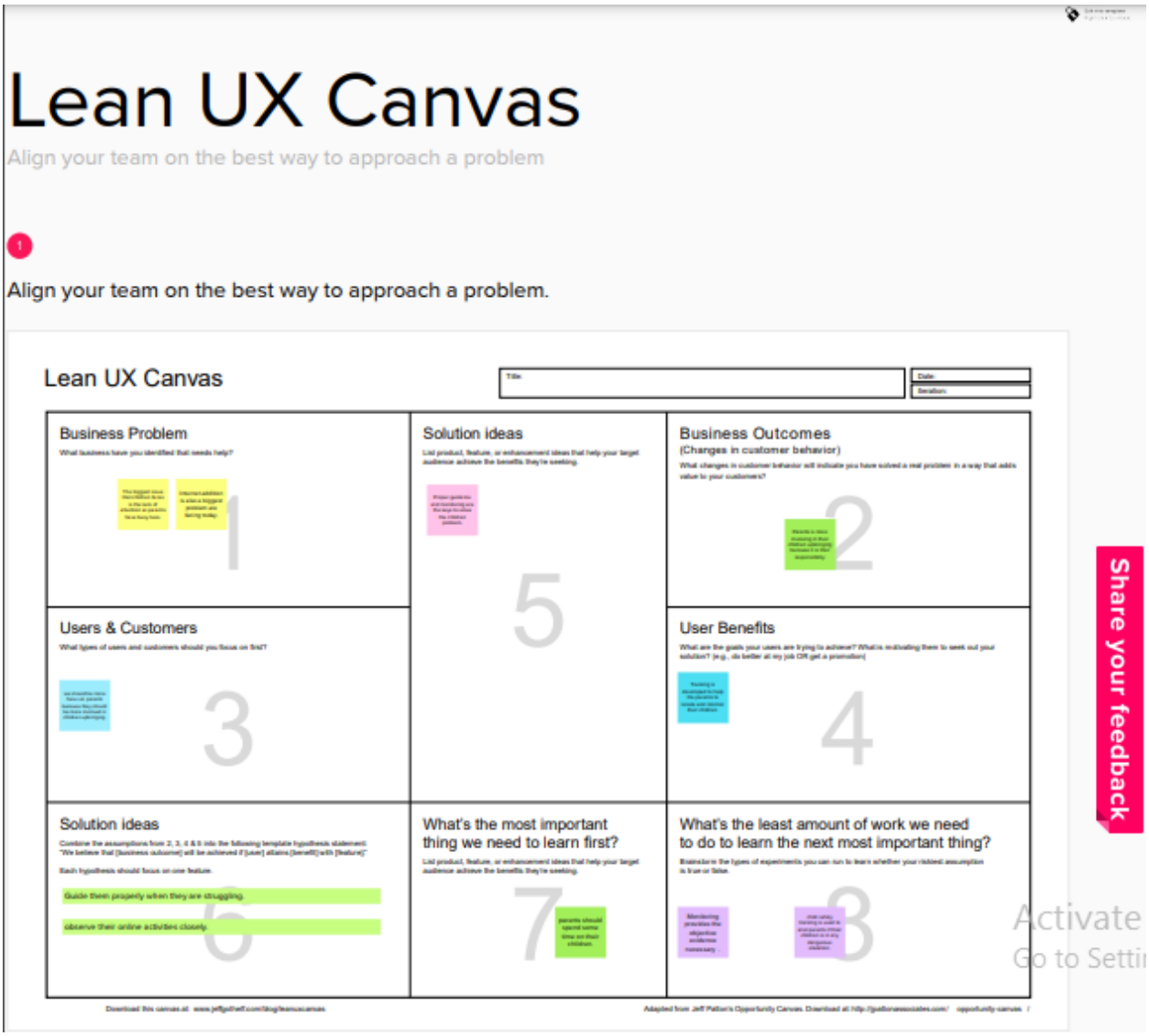



PROPOSED SOLUTION:

## PROPOSED SOLUTION

| S.NO | PARAMETERS | DESCRIPTION |
|---|---|---|
| 1. | Problem Statement (Problem to be solved) | The biggest issue that children face is the lack of attention as parents have busy lives. they are so much busy that they have no idea how their kids spend their time. Internet addiction is also a serious issue children are facing today. |
| 2. | Idea / Solution description | Proper guidance and monitoring are the keys to solve the children's problem. Parents should be more involved in their children's upbringing because it is their responsibility to raise and guide them properly when they are struggling. In addition, it is necessary to observe their online activities closely. |
| 3. | Novelty / Uniqueness | With this motivation, a smart IoT device for child safety and tracking is developed to help the parents to locate and monitor their children. |
| 4. | Social Impact / Customer Satisfaction | **An important feature of IoT software is predictive maintenance, which is responsible for monitoring equipment in the workplace. The main idea here is that the software will be able to detect any structural failures in the connected devices, making way for corrective measures before any unfortunate accidents.** |
| 5. | Scalability of the Solution | Scalability issues can be sorted out using IoT provided that the wireless network is wide range with high data speed and flexible software infrastructure. |

PROBLEM SOLUTION FIT:




REQUIREMENT ANALYSIS:

FUNCTIONAL REQUIREMENTS:

| FR.NO | FUNCTIONAL REQUIREMENTS: | SUB REQUIREMENTS |
|---|---|---|
| 1 | External Interfaces | These requirements include interaction logic between |

| | | |
|---|---|---|
| | | software and user, screen layouts, buttons, functions on every screen, hardware interfaces (here a team describes what devices the software is created for), and other relevant particularities. |
| 2 | Reporting | Reporting Requirements means any applicable laws, rules, regulations, instruments, orders or directives and any requirements of a regulatory or supervisory organization that mandate reporting and/or retention of safety and similar information |
| 3 | Authentication | The system sends an approval request after the user enters personal information |
| 4 | User Interface | It should be the connector between the various systems or between other part or unit of the system. |
| 5 | Software interface | This includes embedded application that will used in supporting the various functions of the system Eg: GPS, Web Server and Database |

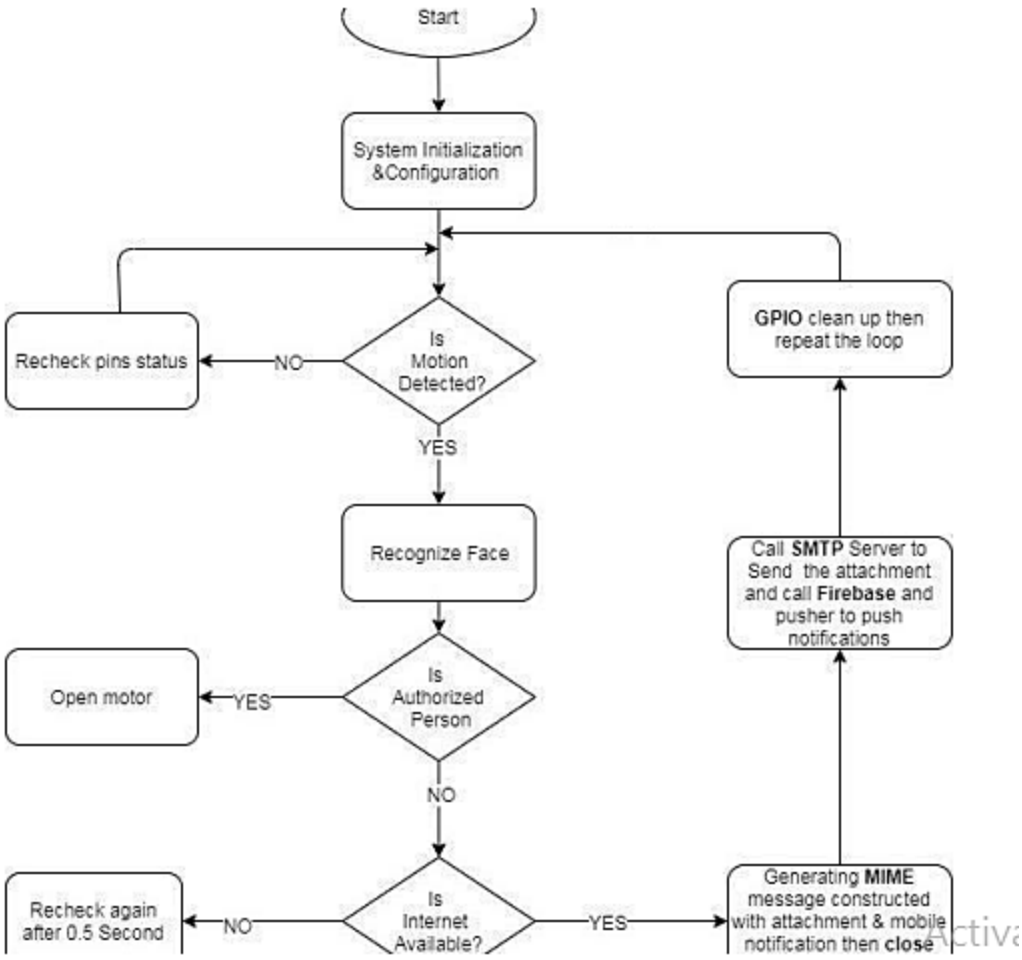
NON FUNCTIONAL REQUIREMENTS:

| NFR.NO | NON FUNCTIONAL REQUIREMENTS | EXPLANATION |
|---|---|---|
| 1 | Usability | Usability is a non-functional requirement, because in its essence it doesn't specify parts of the system functionality, only how that functionality is to be perceived by the user, for instance how easy it must be to learn and how efficient it must be for carrying out user tasks. |
| 2 | Security | Security is a non-functional requirement assuring all data inside the system or its part will be protected against malware attacks or unauthorized access. |
| 3 | Reliability | Reliability is the extent to which the software system consistently performs the specified functions without failure. ELICITATION: Reliability requirements address the user concern for the system's immunity to failure. |
| 4 | Performance | The website's load time should not be more than one second for users. |
| 5 | Availability | Employers can post jobs on the website throughout the week at any time during the day. |
| 5 | Scalability | Scalability is the ability of the application to handle an increase in workload without performance degradion, or its ability to quickly enlarge. |



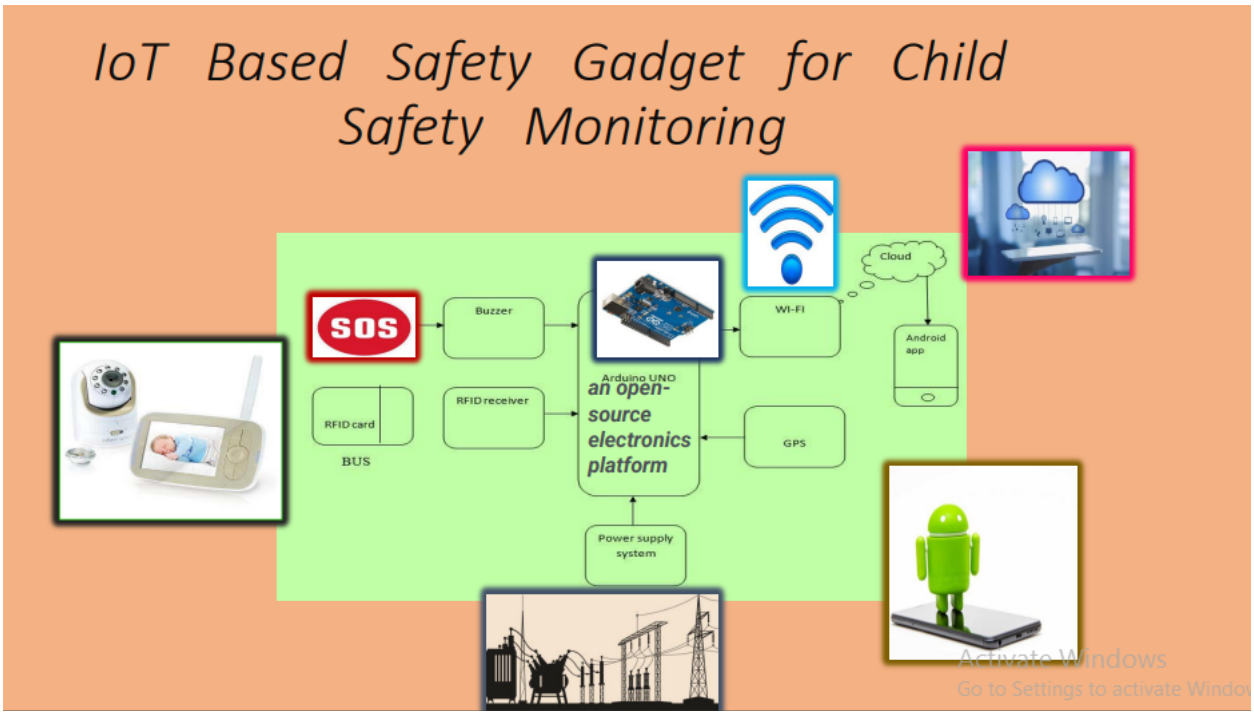
PROJECT DESIGN:

DATA FLOW DIAGRAMS:




SOLUTION AND TECHNICAL ARCHITECTURE:

PROBLEM SOLUTION ARCHITECTURE:




TECHNICAL ARCHITECTURE:

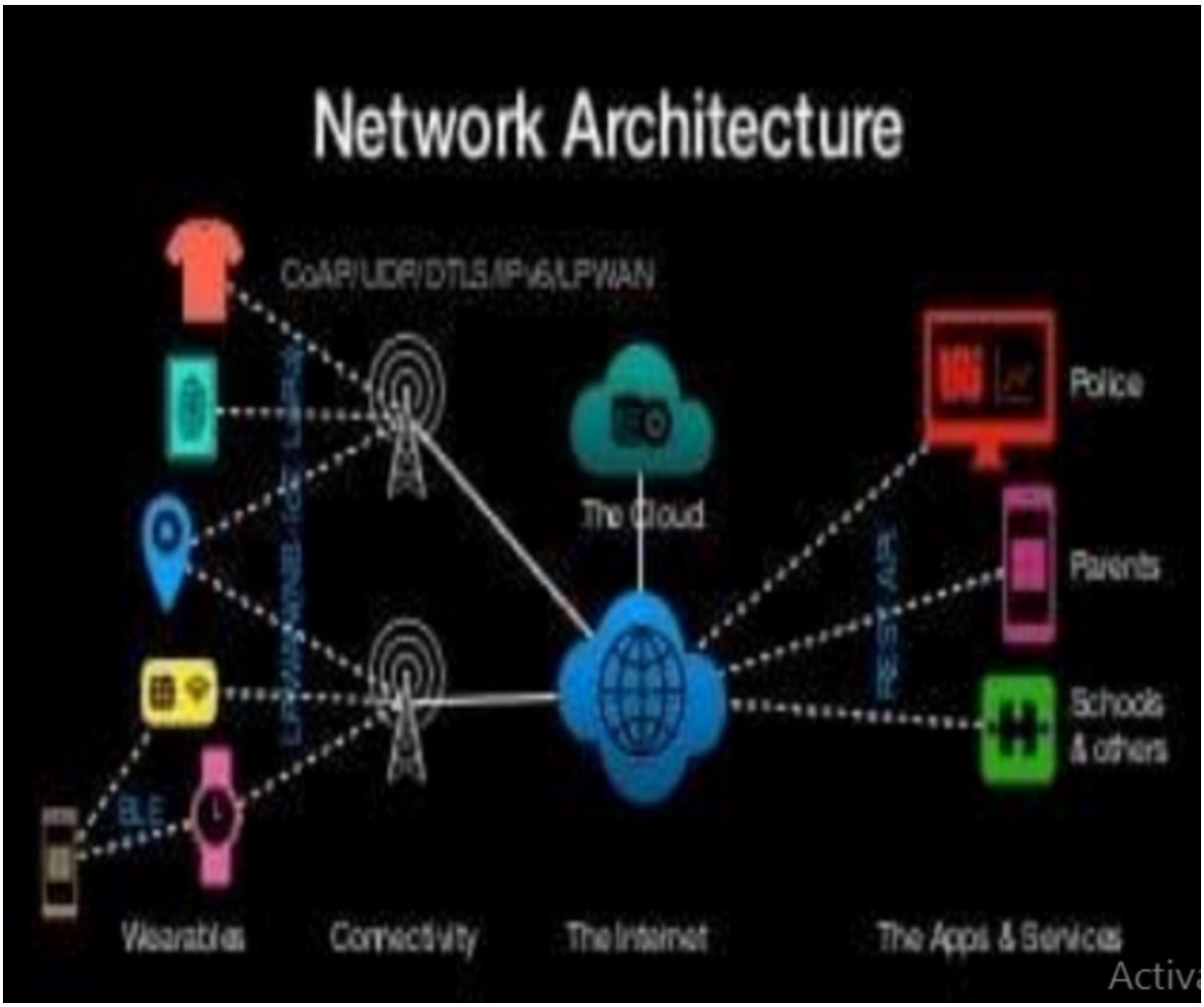

Network Architecture
CoAP/UDP/DTLS/IPv6/LPWAN
The Cloud
Police
Parents
Schools
& others
BLE
Wearables
Connectivity
The Internet
The Apps & Services

**Table1:Components and Technologies**

| S.No | Components | Description | Technology |
|---|---|---|---|
| • | User Interface | How user interacts with application e.g. Mobile App ,etc. | GPS ,GSM |
| • | Application Logic-1 | Logic for a process in the application | Python –Raspberry pi |
| • | Application Logic-2 | Logic for a process in the application | IBM child safety kit |
| • | Application Logic-3 | Logic for a process in the application | IBM kid security |
| • | Database | Data Type, Configurations etc. | CrateDB |
| • | Cloud Database | Database Service on Cloud | IBM Cloudant DB |
| • | File Storage | File storage requirements | IBM Watson Studio ,IBM Cloud |
| • | External API-1 | Purpose of External API used in the application | IBM Weather API etc. |
| • | External API-2 | Purpose of External API used in the application | IBM Cloud etc. |
| • | Infrastructure(server or cloud) | Application deployment for local system or cloud | Cloud database server |



Table-2: APPLICATION CHARACTERISTICS:

| S. No • | Characteristics Open source architecture | Description Framework is presented for Smart child safety using Sensor network and IOT.The Key feature of the system are Deployment of smart sensor For the collection of Data,cloud based analysis And decision based on Monitoring for children Safety. | Technology Technology used is Big data,cloud,IOT,AI. |
|---|---|---|---|
| | | | |
| • | Scalable Architecture | The collected values from every sensor like temperature sensor, pulse rate detection sensor, metal detection sensor, and the location value from GPS are used to detect the status of the child and alerts the respective guardians using GSM accordingly. | Technology used is sensors and GPS technology,for monitoring children activities. |

| | | | |
|---|---|---|---|
| • | Availability | The availability of sensors and their working progress will happen always even in the absence of parents controlling. | Technology used is effective through recording. |

USER STORIES:

| Sprint | Functional Requirement | User Story Number | User Story /Task | Story Points | Priority | Team Members |
|---|---|---|---|---|---|---|
| Sprint-1 | Registration | US1 | As a user, I can register for the application by entering my email, password, and confirming my password. | 2 | High | Mari Ashwini B |
| Sprint-1 | | US2 | As a user, I will receive confirmation email once I have registered for the application. | 2 | High | Asha S |
| Sprint-2 | | US3 | As a user, I can register for the application through Facebook. | 2 | Low | Muthu Sornamathy M |
| Sprint-1 | | US4 | As a user, I can register for the application through Gmail. | 2 | Medium | Nandhini SB |
| Sprint-1 | Login | US5 | As a user, I can log into the application by entering email & password. | 2 | High | Mari Ashwini B |
| Sprint-1 | Dashboard | US6 | As a user, I can easily navigate through dashboard and I can use the dashboard to get details about app and instruction to use the app. | 2 | High | Asha S |
| Sprint-1 | Login and Dashboard | US7 | As a web app user, I can login into application by using my email and password and I can access all resources same as mobile users. | 2 | High | Nandhini SB |
| Sprint-1 | Login | CCE1 | As a CCE I can login to app using my id and password and I can interact with user. | 2 | High | Muthu Sornamathy M |
| Sprint-1 | Dashboard | CCE2 | As a CCE I can access dashboard using id and password and I can see all user queries, explain app usage and attend their queries. | 2 | High | Mari Ashwini B |

PROJECT PLANNING & SCHEDULING:
SPRINT PLANING & ESTIMATION:

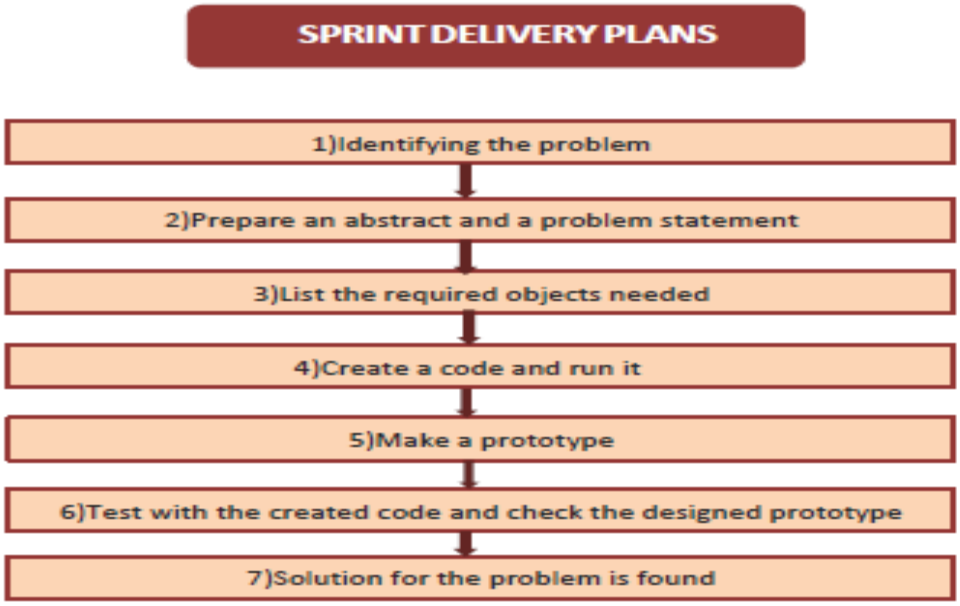
| S.NO | ACTIVITY TITLE | ACTIVITY DESCRIPTION | DURATION |
|---|---|---|---|
| 1. | UNDERSTANDING THE PROJECT | ASSIGN THE TEAM MEMBERS AND CREATE REPOSITORY IN THE GITHUB, ASSIGN THE TASK TO EACH MEMBERS AND TEACH HOW TO USE AND OPEN AND ACCESS THE GITHUB AND IBM CAREER EDUCATION | 1 week |
| 2. | STARTING OF PROJECT | STRICTLY ADVISING STUDENTS TO ATTEND ALL CLASSES OF IBM PORTAL CREATING AND DEVELOPING A ROUGH DIAGRAM BASED ON PROJECT DESCRIPTION AND GATHERING OF INFORMATION ON IOT AND IBM PROJECT AND TEAM LEADER ASSIGN TASK TO EACH MEMBER OF THE PROJECT | 1 week |

| | | | |
|---|---|---|---|
| 3. | ATTENDING CLASSES | THE ASSIGNED GROUP COMPRISING TEAM MEMBERS AND TEAM LEADER MUST WATCH AND GAIN OWN KNOWLEDGE FROM CLASSES PROVIDED BY IBM AND NALAYA THIRAN AND MUST GAIN ACCESS OF MIT LICENSE FOR THEIR PROJECT | 1 week |
| 4. | BUDGET AND SCOPE OF PROJECT | OVERVIEW OF BUDGET AND ANALYZE THE USE OF IOT BASED SAFETY GADGETS FOR CHILD SAFETY IN THE PROJECT AND DISCUSS WITH TEAM FOR BUDGET ESTIMATION TO PREDICT THE FAVOURABILITY FOR THE CUSTOMER TO BUY AND MAKING THE CUSTOMERS SATISFIED OF THE PRODUCT. | 1 week |
| 5 | EXECUTING,MONITORING,MANAGING, CONTROLLING | ANALYZING AND TESTING OF PROJECT TEAM AND ASSIGNED MENTOR AND CONTROL OF SOFTWARE IN REAL TIME ENVIRONMENT UNDER SUPERVISION OF MULTIPLE STAFF AND MENTORS AND PUBLISHING TO CUSTOMER FOR USE OF PRODUCT PUBLISHING OF PRODUCT DELIVERABLE AND CONDUCTING REPORT ON USER EXPERIENCE AND SAFE PRODUCT REVIEW TO ONTIME UPDATE OF PRODUCT FOR FUTURE UPGRADING OF THE | 2 weeks |

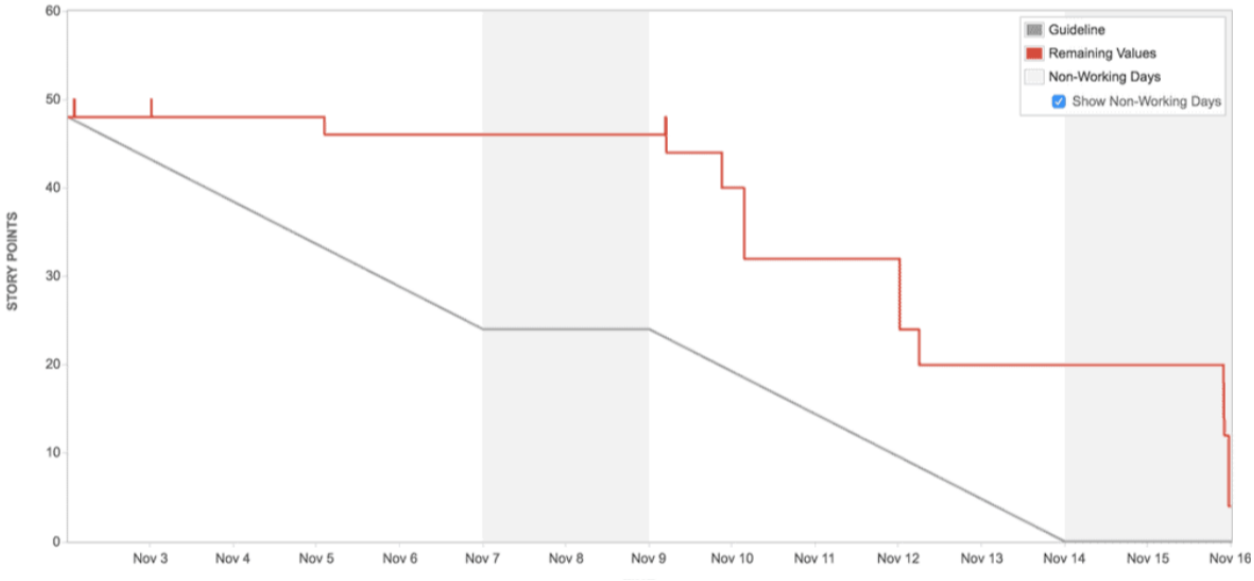
| Sprint | Total Story Points | Duration | Sprint Start Date | Sprint End Date (Planned) | Story Points Completed (as on Planned End Date) | Sprint Release Date (Actual) |
|---|---|---|---|---|---|---|
| Sprint 1 | 20 | 6 Days | 24 Oct 2022 | 29 Oct 2022 | 20 | 29 Oct 2022 |
| Sprint 2 | 20 | 6 Days | 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 |

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

SPRINT DELIVERY SCHEDULE:



REPORTS FROM JIRA:




CODING & SOLUTION:

FEATURE:

```
while True:
    name="Child Safety"
    #in area location
    latitude=17.4225176
    longitude=78.5450842
    #out area location
    Latitude=17.4219272
    Longitude=78.5488783
    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(5)
client.disconnect()
```

The above program is for exexuting the most important feature of the iot device.We are using a while loop here.while it is true, the below part will be executed.In this code we are assigning the name as Child safety.We are assigning the latitude as 17.4215176 and longitude as 78.5450842 in the in area location.And in out area location,we are assigning latitude as 17.4219272 and longitude as 78.5488783.We are assigning event ID as status,so that it will show status.and we are assigning qos as zero.we are using time.sleep function.time sleep function is used to add delay in the execution of a program. We can use python sleep function to halt the execution of the program for given time in seconds. time. sleep(x) where x is the

number of seconds that you want your program to wait. so we have used here to wait for 5 seconds.And client.disconnect() function is used.

TESTING:

TESTING LINK:

http://ai2.appinventor.mit.edu/#6301189311168512

RESULTS:

PERFORMANCE METRICES:

One of the module in our project is temperature sensor which is used to detect the temperature of the child as well as the surrounding temperature.
If there occurs any abnormal rise or fall in temperature in the body of the child or in the surrounding it will notify the user as per the coded time delay
It will show the temperature and humidity values notifies the user based on the predefined value abnormal fall or rise scenarios.We also have a web camera through which we can monitor the child lively through live video streaming wheneveR whenever we get notified in abnormal cases. We have an IP address for the camera fitted with the kit and we are supposed to enter that IP address in our mobile application or web application through which we can see the live video streaming of what's happening around the child. we can monitor the child 24/7 in real time through the help of this live streaming which makes parents feel that they are beside their children ensuring children's safety.

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.Enable tracking of the child's location and capturing of data remotely such as temperature, pulse, respiratory rate, quality of sleep and many more. It can show the child's actual data with reference values. It is capable of sending of notification if the child is out of location or when the device realizes abnormal conditions/situations. It can be able to trigger the alarm and enable automatic video recording whenever the emergency button is pressed. Then, emergency notification along real-time video will be sent to and display in the parents' mobile apps. We can also 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.

DISADVANTAGES:

The major disadvantage for this important band is that it employs Bluetooth as the way of communication in between parent and the child. Therefore, the wearable device implemented will be effectively communicating the parent via SMS through GSM . This ensures that there is a secure communication link.Wearable technology is expensive.You don't have any chance of locating your kid if they're not wearing it. So, it's the responsibility of the design engineer to make sure that the material should be flexible and non-irritating for skin, as well as adjustable enough to ensure a comfy fit. Hence the device should be comfortable for little one

CONCLUSION:

The word Future resembles the word Children. As Dr. A.P.J Abdul Kalam's words "Youngsters are the future 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.

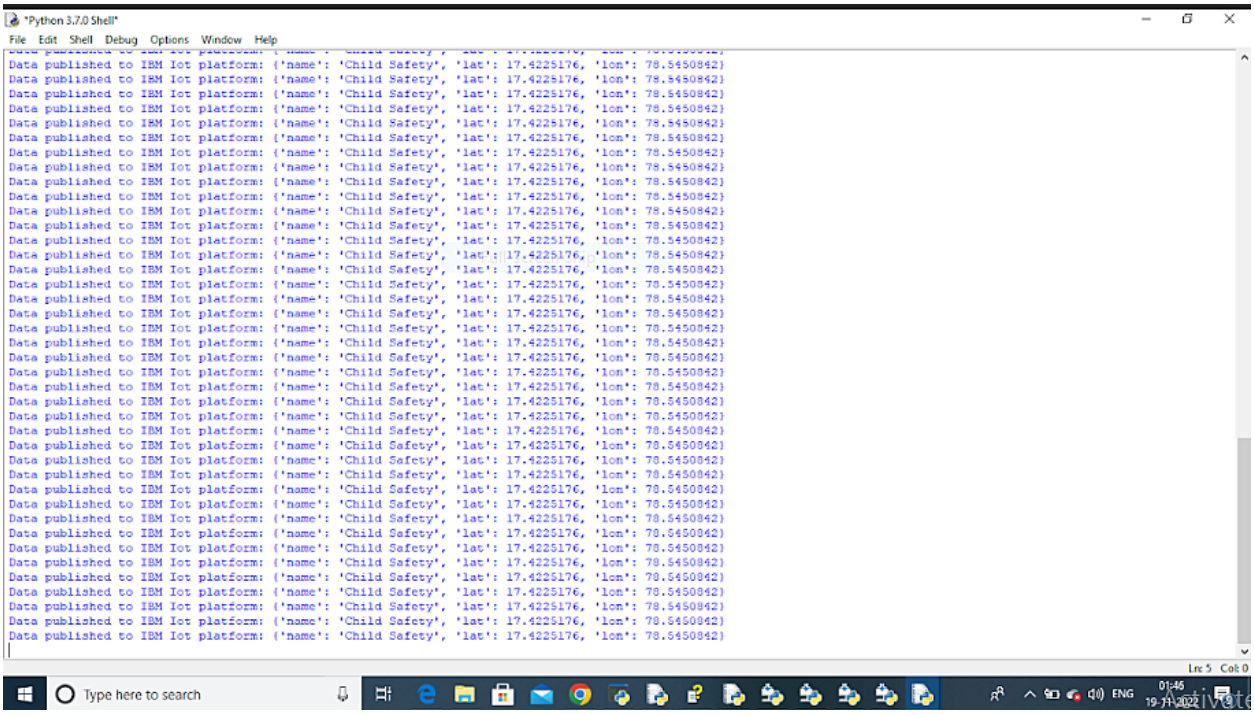
APPENDIX:

SOURCE CODE:

```
import json
import wiotp.sdk.device
import time
myConfig={
    "identity":{
        "orgid":"egyw7a",
        "typeId":"NodeMCU",
        "deviceId":"12345"
        },
          "auth":{
              "token":"12345678"
              }


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

while True:
    name="Child Safety"
    #in area location
    latitude=17.4225176
    longitude=78.5450842
    #out area location
    Latitude=17.4219272
    Longitude=78.5488783
    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(5)
client.disconnect()
```




GITHUB LINK:

https://github.com/IBM-EPBL/IBM-Project-30739-1660185345

PROJECT DEMO LINK:

https://drive.google.com/file/d/1BNY2PucEb_Wuto9FL0R3DSJXH7xaEkbZ/view?usp=drivesdk