MAHENDRA ENGINEERING COLLEGE FOR WOMEN

IoT Based Safety Gadget for Child Safety Monitoring & Notification

TEAM ID: PNT2022TMID30411

TEAM MEMBERS:

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INTRODUCTION

Child 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. Smart Gadget major role for ensuring the Safety, where some mobile based applications provide alert systems. During the emergency, Application 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.

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

IoT Based Safety Gadget for Child Safety Monitoring & Notification Plays a key role in providing better care for the lost children until they Reconvene with the parents. In this present era,mostofthewearableDevicestodayaredesignedbasedonthelocation,activitytemperature, Pressure, etc of the child and in form the parents via GPS. Therefore it Is intended to use voice call as the way of communication between the Parent mobile and child' s wearable device. The system operates on the Microcontroller board and the functions of sending and receiving Notifications ,calls, voice messages viaGPS.

- *Now-a-daysattacksonchildrenareincreasingatanunprecedentedrateandthevictims areindangerousconditions,wheretheyarenotallowedtocontactthefamilymembers.*
- *Thekeyideaplannedinthisresearchworkisanadvancedtechnologythatoffers"Smart Child Safety" for thechildren.*
- *Therefore,theawarenessofthismethodistosendanSMSfromchildren'swearto olto their parent orguardian.*
- *Intheprevailingstructure,thereisnomonitoringmethodforchild,itshouldcreate many problems for them and the no protectionmechanism to protect the child from the misbehavior.*
- *Inaddition,thereisnoawaredeviceforthechild'sprotection;itmustbecompleted by handonly.*
- *Thus,theplannedmethodwillbehighlyeffectivewhencomparedtotheotherexisting techniques in helping thevictims.*
- *Moreover,itdoesn'tneedanymanualoperation.Thispaperrecommendsanewfangled technology for child protection by using GSM so that the children will not feel abandoned while facing such socialproblems.*
- *TheproblemsoverawedhereusingArduinoUNO,GSM,sensors,MEMS,temperature and panic button by usingIOT.*
- *Insuchcase,HeartbeatSensortrackthebestratefor childrenandsendstheemergency message by using the GSM to savecontacts.*
- *Such method is actually suppove for children in today'sworld.*
- *Hence,thisprovidesasecuritytothechildrenand securesthefeeling ofparents.*

***Keyword*:**

Arduino UNO*; *wearable device*; *IOT*; *GSM*; *GPS

***Advantages*:**

- ***Stayingconnected,***
- ***Data accuracy,***
- ***Efficiency.***

***Disadvantages*:**

- ***High cost but once it isimplemented the expenses can be reduced.***

Intelligent Child Safety System using Machine Learning in IoT Devices

***Author* :**

(Dr. Sreeja B S, Aparajith Srinivasan, Akshaya R, Abirami S,Divya N.)

- ***Childsafetyandtracking isofmostimportanceaschildrenarethemostvulnerable.***
- ***Withincreasingcrimeratessuchaschildkidnaping,childtrafficking,childabus eandso on such as child kidnaping, child trafficking, child abuse and so on the need for an advanced smart security system has become annecessity***
- ***With this motivation, a self-alerting"INTELLIGENT CHILD SAFETY SYSTEM USINGMACHINELEARNINGINIOTDEVICES"isdevelopedtoaidparentsto monitorandtracktheirchildreninrealtimeasanalternatetostaybesidethem.***

- *This system is intended as a everyday wearable device on the child, in the form of a wrist band, hand glove, arm band or a belt.*
- *The system is designed to continuously monitor the location and body vital sof children. This electronic system comprises of an Arduino controller, a Raspberry-Pi and sensors to detect the changes in parameters such as temperature, BVP (Blood Volume Pulse) and GSR (Galvanic Skin Response).*
- *The system also uses a GSM and GPS module. Decision Tree Classifier Algorithm is used to detect any distress situation with sensor values as inputs.*
- *The location of the victim is traced using the GPS module and dissent to the registered contact numbers as a text message using a GSM module.*
- *The work lies in the autonomous decision making process with increased accuracy.*

***Keywords*:**

Child safety, GPS, GSM, Sensors, Arduino, Raspberry-Pi, Decision Tree Classifier, Autonomous Decision, Intelligent Child Safety System using Machine Learning in IoT Devices.

***Advantage*:**

- *According to the child mental and physical condition, when kids are in danger automatically the message notification will be sent to the parents (register number).*
- *Distance is not a barrier to track a child location - (GPS Tracker).*

***Disadvantage*:**

- *Decision Tree Classifier Algorithm is a complex structure.*
- *Cost is too high.*

IoT Based Safety Gadget for Child Safety Monitoring and Notification

Authors:

(H.M. Sabaa Fathima)

- ***This project discusses the concept of a smart wearable device for littlechildren.***
- ***The major pros of this wearable over other wearable is that it can be used in any cellphoneanddoesn'tnecessarilyrequireanexpensivesmartphoneandnotaverytech savvy individual tooperate.***
- ***Thepurposeofthisdeviceisto help theparentstolocatetheirchild with ease.***
- ***Atthemomenttherearemanywearablesin themarketwhichhelptrackthedailyactivity of childrenandalsohelp findthechildusingWi-FiandBluetooth servicespresentonthe device.***
- ***ButWi-Fi(WirelessFidelity)andBluetoothappeartobeanunreliablemediumof communication between the parent andchild.***
- ***Therefore, the focus of this project is to have an SMS text enabled communication mediumbetweenthechild'swearableandtheparentastheenvironmentforGSMmobile communication.***
- ***Theparentcansendatextas SMSwithspecifickeywordssuchas"LOCATION", "TEMPERATURE", "SOS", "BUZZ", etc., to the wearabledevice.***
- ***Thedevicewillreplaybackwithatextcontainingtherealtimeaccuratelocationo fthe child and will also provide the surrounding temperature, so that the parents can keep track if the temperature not suitable for thechild.***

- ***The secondary measure implemented was using a bright SOS Light and distress alarm buzzerpresentonthewearabledevicewhichcanbeactivatedbytheparentsviaSMSte xt to display the SOS signal brightly and sound an alarm which a bystander can instantly reactforthechild'ssafetytilltheparentsarriveortheycouldcontacttheparentsand help locatethem.***
- ***Hencethisprojectaimsatprovidingparentswithasenseofsecurityfortheir child intoday'stime.***

Keywords **:**

Children, Arduino, Safety, Wearable.

Advantages**:**

- ***The ability to locate and track your child in real time is all made possible with IoT- enabledtechnology.TheyaremanyotherbenefitsthatIoT- enabledchildtracksinclude; Keeps track of children in case of abduction.***

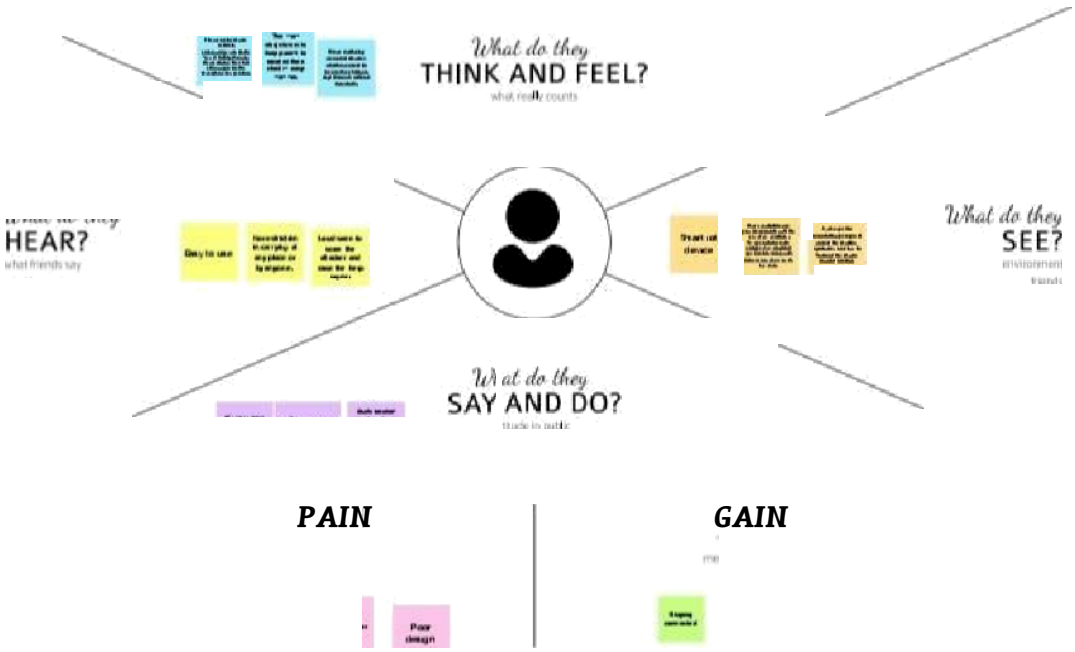
Disadvantages**:**

- ***The child could not produce the exact alert command during a paniccondconditio***
- ***Thecommand***

Problem statement:

Empathy Map Canvas

Bulld empathy and keep your focus on the user by puttlng yourself In thelr shoes.



			difficult to tracking		

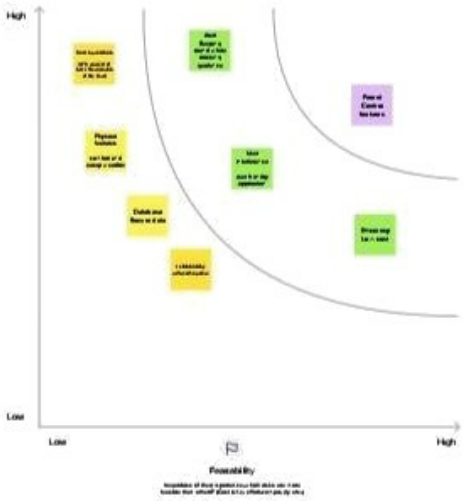
Template

Ideeprlorhbatlo

Use this framework to rankideas basedon their feasibility and impact to visually compare the merits of multipleideas. Deliver a setof ideas that your team wants to try out, and identify which ofthem need to be prioritized.

Collect yourideas in one place

Jot down different ideas your teamis interested intrying out. There could be different solutions or different approaches to the same problem. As a team, go through the ideas in the idea bank one by one and place them on the grid. Take the time to discuss each idea and come to a consensus on where it should go.



Need more explanation?

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

1) Parents who are not able to look after their child.
2) Care-taker who are aged.
3) Customer who can't be with their child.

6. CUSTOMER CONSTRAINTS — CC

1) The network connectivity is not interrupted
2) Affordability.

5. AVAILABLE SOLUTIONS — AS

Developing an application that is able to monitor and track the child.

Explore AS, differentiate

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

2. JOBS-TO-BE-DONE / PROBLEMS — J&P

1) To constantly monitor the child.
2) Alert the parents via messages ,once they cross the created geofence.

9. PROBLEM ROOT CAUSE — RC

Most of the children are getting kidnapped and facing many issues and these cases are growing rapidly. Each and every day the children are being assaulted and facing many problems and issues.

7. BEHAVIOUR — BE

1) By setting a Geofence using GPS module.
2) Alert the parents by developing an application

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

3. TRIGGERS — TR

As a child can't be able to take care of itself and may commit any mistake unknowingly. 4. EMOTIONS: BEFORE / AFTER

10. YOUR SOLUTION — SL

To design a gadget that monitors the location of the child and also alert the parents in case of any emergency situation like child out of geofence.

8. CHANNELS of BEHAVIOUR — CH

Online:Application is developed to track the child's location and send an alert message to the parents in case of abnormality.
Offline: biosensors and an emergency buzzer can be used.

Identify strong TR & EM

Before:uneasy,concerned, worried.
. After:assured,positive, hopeful.

Identify strong TR & EM, Extract online & offline CH

Solution *archkectur5 iB B CO f Tlplex prooese - Wkh many Bub-prooesass - that brldgesthe gap be f iveen business. problems and technology B@lMtIons. ItB go8ts are to:*

Find the beat.tech BOlutlon to solve existing busII18BB FobteFFiB.

Describe the structure, characteristiCB, behavior, and other aspects o f the8o f twareto projectBtakeholderB.

De f ine f eatureB, development phases,.and BOtutbn requlremehts.

Povide speci f ications acoording to which.the solution is derined, managed, and detUered. soluOon

Reposed solution Tamplast:

S. No.	Parameter	*Oescrlptlon*
1.	*Problem Statement (Problem to be solved)*	*Chi f d"sa f etyIsthd f oremostcommonbsu e e"mergIngaroundtheworld,Parentsterri f y to send thelr kids to schoob located at longer distances due to the behaviour o f unéxpectedstra@ers,Forevery40seocirids, a child IS mlsstng In th f s world which Is a majordrawbacko f thesocletY.Parentsare responsible f or taklng care o f thelr own childrenasthechildrenareImmatureabout what happens to them. Nowadays, dueto economic condlt f on and alms to hue on thelrchl f d's f utureandcareer.parercsare f ork to trave f or mod. Hence, It "becomes di f f icult f or them to cllng on to thelr ch"I ldren all the tlme, Th f S problem mustberecti f iedasthesa f etyo f chlorenI s veryImportam,*
2.	*idea / Solution descrlpt f on*	*The"Ideao f .thepropasal"Istodesignand f mplemeM the "Chlld Sa f ety Wearable Devlce' f or the sa f ety o f the children. According to thls proposal, parents can mo"nItor.thesecurityé f theirch f ldreriat any*

		time. **Panic button:** When a chi Id ƒeels 1hr eatened in any situation,he/shecanpressthepanicbulton, whichsendsanautomaticmetsageanda phonecalltotheparentorguardian,aswelI asapreEiSeliveGPSlocaiion.PaniEbuttone arepuƒƒbut£or\Swhichcanbepressedbya personindai›§ei.ttallowsuserstoaskƒor help directly. The ac £ua£ i on oƒ a pan iE burronimmediateIyleadsroanalarmand notiƒica£ionasexplainedabove.ƒtenables children to attract the attention oƒ th eir parents. It iS a securitydev'ice. **Heart beat sensor:** The hearibeat sensor deieci s the child's heartrate anddeliversittothegeardianon aregularbasis.HeartrateiSastandardvital sign and has betomea routine measuremendinhealthcare.Themonitoring oƒihisSignalprovidesinƒormationabouttth e phySiologiE Stat us oƒ the chi Id. Periodic u pdate oƒ heartbeat is done through th e GSM module to d eliver ƒreq ueni updaies to ihe caregiver viaSMS. **Fall Detection and Alert:** When the user ƒalls, lhere will be a large spikeinacce/erariuri,whie/iwi//dedetec ted and the live GPS locaii on will be retrieved using the GPS module via serial communicaiion, process ihe GP5 data, and send the I ive low ation coordinates to the caretaker through SMS, indicating the pos sibiliiy oƒ the user ƒalling. In addilion, an aux omatiC call will be made to thecaretaker.

		Temperature Sensor: A temperature sensor Is a devlce used to measure temperature. In our cnse, It Is used to dctermlne the temperature of the chlld's I mmedlate erwl ronrnent. It res the GSM module to del Iver frequent updates to the careglver vlaSMS. AbatteryIsadevlcethatIsabletostoreel ectrkalenergyInthe form of chemkalen ergy,and thatenergyIntoelectrlclty.Batteriesar eusedInvarlousthlngsthatweuseInourh ouse.8atterlesareusedtopowerthlngsII keremotetorches, wall clocks,flashlights, hearlns alds, weIght stales, etc. An accelerometer Is an electrohlc sensor thatmeasurestheacceleratlonfor'resactlng on an object in order to determine the object's posltlon In space and rnonltor the object's movement. They are used In many ways, such as Ih many electronic devlces, smartphones, and wearable devlces, etc. Thedatafromtheaccelerorneter Isanalysed usIngseveralthresholdvaluesIfthereIsany sudden falI movement. The user -supplied parameters, such as helght, weIght, and degree of attlvlty, are used to adjust the threshold. **GPS:** the GPS stards for Global Posltlonl ng System.Itisusedforseveralfur›ctIons.The malnfunrtlonsofGPSaretodetermlnethe locatlon(posltlonofthechlld),navlgatlon (gettlng from one location to another), tracklng(rnonltorlngobjectorpersonal

		movement), mapplng (creatlng maps of the world),timlng(maklngItpossIble totake prec/se IImemeasurements), GSM: The Global System for MoblIe Com mun/cat/ons module Is Intended for SMSmonltorlng.ItIsused for data secur/t y anddatatransmlssion.TheGSMtechnology /s used oiled uses mobile statlons, base subsTatluns, ated ttetwurk systems.ThIs modulemaybeusedtoperformpractlcally whateverabaslcmobllephonecan,suchas sendandrecelve5K1S,textmessages.make and receive phone calls, connect to the IñternetFlaGPRS,TCP/IP,andsoon,When thepan/cbuttonIstouched,atextmessage IssenttotheregIsteredphone,coupledwlth aphonecalIandallyeGPSlocatlon,Perlod/c updates are dellyer ed to the caretaker throughSM5usIngthlsmodule. Interneto f Things(IOT):Interneto f Thln gs (IOT)Isthelatesttechnologythatconnects entlreworld.ItIsasystemo f Interrelated <omputlngdevlces,mechanicalanddigital machlnes.objects,anlmalsorpeoplethat areprovldedwithunlqueidentl f iers(UID S) and The abiII£y to trans f er data over a network without requlrlng human-to-human or human-tocomputer interactlon. It estabIlshesconnectlyIty(through/nternet) amongthevarlousdey f cesorservicesor systems In order to IIttI e by IIttIe make automatlondeyelopment/nallareas.Sa f ety 1stkemostwantedpower f oreveryoneIn today'sworld.TechnologyIsthebestwayto solve thls problem. That's the reason to develop thlspro jectthatcanactasarescue devlce and protect atthe

		t ime of danger.
3.	Novel ty / Uniquene s s	The novelty of this project is to use Internet Of Things to create a gadget that provides "Smart Child Safety" to protect children, which will be far more effective than current methoch in assisting victims. The child safety wearable system acts as a smart device. Child's surroundings can be located with the help of accurate and precise real-time location. Surroundir\g environment temperature, SO5 light along with Distre s s buzzers are provided in this system .This helps in locating their cii Id and also aids the bystanders to rescue the child. The other mai n purpose of this project is to use a GSM module to enable 5M5 communication between the child's wearable and the parent. Parents can text particular phrase s such as "LOCATION," '7EN1PERATURE","SO5","BU ZZ," "UV,"and so on, and the wearabl e device wilI answer with a text outlining the chi Id's current location, which wken pressed will show the child's exact location on Google maps. It also shows the temperature and UV radiation i ndex so that parents can keep an eye on their children' s surroundings. Also as a future scope, more power efficient model can be created that holds the battery for a I ongtime.

5.	8uslnes s Model (Revenue Model\	A buslness wlth a large profit margln naturallyattractsmanymanufacturerstodo It. Chlldren's watches, even consldereda"wlndow" by them, contlnue to produce a large number of similar Inferior products.Nowadays, GPS tracking technology Iswldelyused Inpersonalhouseholdsandb uslnesses. The GPS trackl ng market Israpldly growlng and has an amazlng potentlalinthefuture.Peoplearebecomlng more and more concerned about thel rsafety and the safety of thelr valuables.That's why famllles are startlng to usemoblletracklngappsandGPStrackers fortheIr chlldrenandotherloved
		ones. Companles are also tracklng and managlng their vehlcles, dell very trucks, cargo or employees. Accordlng to Global Market Inslghts, "the vehicle tracklng marketslzewasvaluedat$8bllllonIn201 5 andIsantlclpatedtoexceed$22bllllonby 2022."Really,there'snodoubtyoushould startGPStracklngbusinesstodayl
6.	Scalability of the Soluti on	Theproposedmodelcanbeused Ineach andeveryhousetontainlngsmBIIklds.ItIs helpfulforthe parentswhoareplaylngro le asanemployee.AsItensuresthesafetyof thechlldren,Itwouldbeverymuchuseful forthesoclety.Itcanbeusedandmonltored from anywhere.

User journey

	watnh	zone	emergency button	notifcation from the child
				
		The parents /guardian simultaneously check the child	The child in danger zone the parents/guardian verify the	Then parents check the receive captured videos and recordings
Pain points		If the watch get lost	If any network issues occur	location if the smart watch
Opportunities		Market about the devices in advertisements	Child exact locations updating continuesly without interpreted	The wearble devices features are update particular time

Functional Requirements:

FR No.	*Functlonal Requirement (Epic)*	*Sub Requirement (Story / Sub-task)*
FR-1	*Register phone number*	1. Confirmation by sending OTP.
FR-2	Navigation and tracking	*1. NbnltoringtheIIvelocationo f t he chlldbyGPStracker.* *2. CheckwhetherthechlldIswithinthe Ilmited area ornot.*
FR-3	Notification	*1. Whenthechlldisouto f therange.* *2. When the child Is reachlng and leaving theschool.* *3. SuddenchangesInthehealtho f the child.*
FR-4	*Alarm rlng and sending message*	*1. WhenthepanicbuttoniSON.* *2. WhenthechildIskidnappedor* *3. Whenthesenseddataexceedthe threshold value.*
FR-5	*Privacy and encryption*	*2. End to end encryption where* *2. A-cess only by parents and some*

Non Functional Requi rements:

NFR No.	*Non-f unctional Requirement*	*Description*
NFR-1	*Usability*	*The system shall be usable wlthin f ew*
NFR-2	*Sec urity*	*Thesystemandsenseddatacanbeaccessed only by the parents not by the strangers.*
NFR-3	*Maintal nablllty*	*The system shall be malntaindble whenever IailMre occurs.*
NFR-4	*Accuracy*	*ThesystemShallgivetheaccurateresult f or di f f erent f actors uslng senslng material. ASa* *messages.*
NFR-5	*Reliabl lity*	*Thetimingo f thenoti f lcatlondirectIya f f ects* *how the e f lectivity o f the system iS*
NFR-6	*Per f ormance*	*Thesystemiscoste f f ectivecomparlngto the f eatures Itprovldes.*

Sprint	Functional Requirement(Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Spr int -1	Regi stratian	LISN-1	As a user, I can register for the application ay eMeringmyemail,andpassword,and confirmingmypassword.	4	High	Anandakrishnan
Spr int -1	Conf ir m ation Em ail	USN-2	Asauser,IwillreceiveaconfirmationemailonceI have regi stered for the application	4	High	Anaridakrishna n
Sprint-1	Authentication	USN-3	As a user, I can regi ster for the application through Gmail and mobil e app.	4	Medium	AOandakrishnan
Spr int -1	Login	USN-4	As a user, I can log i nto the application by entering email & password	4	High	Dinesh babu
Spr int -1	Dashboard	USN-5	As a user, I need to be able to view the functions that I can per form	4	High	Dinesh babu
Sprint-2	N oti f i cation	USN-1	Asauser,Ishouldbeabletonotifymyparent and guardi an in emergency situations	1 0	High	Bar ichith
Sprint-2	Store data	USN-2	As a user, I need to continuously store my location data into the database.	1 0 6	Medium Low	Bar ichith
5print-5	Communication	USN-3,1	I shoul d be able to communicate with my parents			Gurusheth

Sprint	Functional Requirement(Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-3	IoT Device – Watson communicate on	UHN-1,4	The data from IoT device should reach IBM Cloud	7	Medium	Gurusheth and AnaMadishna
5print-3	Node RED- Cloudant DB communication	UHN-5,2	The data stored in IBM Cloud should be properly integrated with Cloudant DB	7	High	Dinesh Babu and barichith
5print-4	user – WebUl i nterface	USN-1,4	The Web UI should get inputs from the user	6	High	Gurusheth and AnaMadishna
5print-4	Geof enci ng	USN-2,3,d	The geof enci ng of the chil d shoul d be done based on the geographical coordinates	7	High	Dinesh Babu, barichith ,Guru sheth. Anandakrish n an

Project Tracker, Velocity & Bumdown 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	2D	6 Days	24 Oct 2D22	29 Oct 2D22	2D	29 Oct 2022
Sprint-2	20	6 Days	31 Oct2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nav 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nav 2022	19 Nov 2022	20	19 Nov 2D22

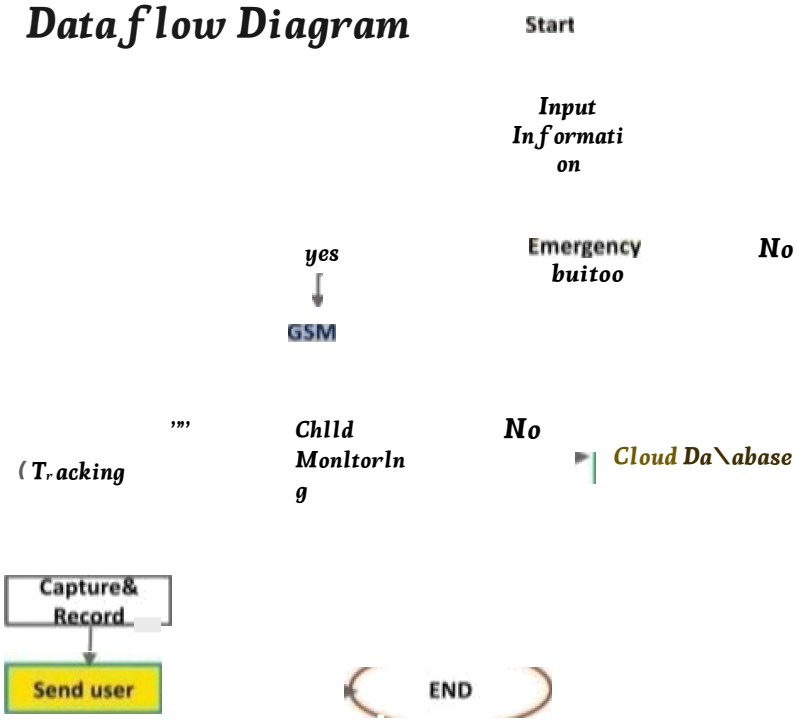
Velocity:

Imaginewehavea10-daysprintduration.andthevetocity of theteamis20(pOintspersprint).Let'scalculatetheteam'saveragevelocity(AV)per iteration unit (story points per day)

$$AV = \frac{\text{sprint dur ation}}{\text{,}\cdot\cdot\cdot}$$

$= -{}^{2}r^{o}x = 2$

Data flow Diagram



MILESTONES AND ACTIVITY LISTS

TEAM ID : PNT 2022 TMID 45857

IOT Based Safety Gadget For Child Safety Monitoring &Notification

¥. Prefequletles

7 IBM Cloud Services

2.ProjectObⱢectIves

7 Abstract

F Brainstorming

3.Create And Conflgure IBM Cloud3arvlcee

FCrealeIBIyIWatsonlotPlatformAndDevic

e F Create Node· RedService

T Create A Database In Clodanf DB

4Oevelop The Python scrlpt

7 Develop A Python Script

5.Develop A Web Appllcatlon Uelng Noda·R ED9ervloe.

T Develop The Web Application Using Node·RED

6.IdeatIonPhaee

FLiteratureSurv9yOnTheSelectedProject&InformationGatherln

9 T Prepare EmpathyMap

7 Ideation

7. Project O'seIgn

Phaee·¥F Propocsd

Solution7PrepareSa

lutionFit

Solution Architecture

8. *Project Design Phase -2*

Customer journey

Functional Requirement

} Data Flow Diagram

TechnologyArchiteMur

e

8.*Project planning Phase*

FYep are Milestones & AMivity Li

st Sprint Deliver y Plan

10.*Project Development Phase*

Qoject Development-Delivery Of Spri nt

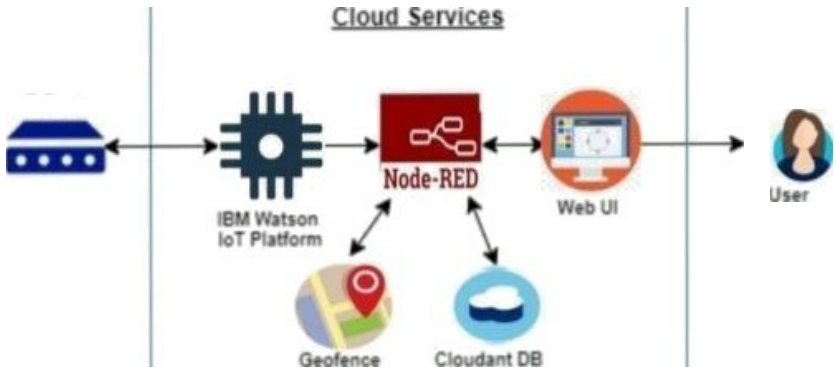
-1 *FYujectDevelupment-*

DeliveryOfSprint-2 *Quject*

Development-Delivery OfSprint-3

," Project Development-Delivery OfSprint-4

TECHNICAL ARCHITECTURE



FINAL CODE

PYTHON CODE:

```
import wiotp.sdk.device
import time
import json
myConfig =
( "identity":
( "orgld":"crmwpw
",
"typeld": "childdevice",
"devicetd" :"CHILD"

"auth": (
"token": "1234567890"


client = wiotp.sdk.device.DeviceCIient(config=myConfig,
IogHandIers=None)
client.connect()
while True:
name="smartbridge"
#in area location
Iatitude=11.651145
longitude=78.156674
#out area location
#Iatitude=11.651165
#longitude=78.15867
2
myData={'name':name, 'lat':latitude, "Ion":longitude}
client.publishEvent(eventId="status", msgFormat="json", data=m
qos=0,
onPublish= None)
print("Published data Successfully: %s", myData)
time.sleep(5)
client.disconnect()
```

ADDING GEOFENCE:

```
package com.example.geofence;
import android.app.PendingIntent;
import android.content.Context;
import android.content.ContextWrapper;
import android.content.Intent;
import android.widget.Toast;
import com.google.android.gms.common.api.ApiException;
import com.google.android.gms.location.Geofence;
import com.google.android.gms.location.GeofenceStatusCodes,
import com.google.android.gms.location.GeofencingRequest;
import com.google.android.gms.maps.model.LatLng;
public class GeofenceHelper extends ContextWrapper

privatestaticfinalStringTAG="GeofenceHelper";
PendingIntentpendingIntent;
public GeofenceHelper(Context base)

super(base);

public GeofencingRequest getGeofencingRequest(Geofence gec

return new GeofencingRequest.Builder()
.addGeofence(geofence)
.setInitialTrigger(GeofencingRequest.INITIAL_TRIGGER_ENTER)
.build();

publicGeofencegetGeofence(StringID,LatLnglatLng,floatradi‹
transitionTypes)

return new Geofence.Builder()
.setCircularRegion(latLng.latitude, IatLng.longitude, radius)
.setRequestId(ID)
.setTransitionTypes(transitionTypes)
.setLoiteringDeIay(5000)
.setExpirationDuration(Geofence.NEVER EXPIRE)
```

```
.build();

public PendingIntent getPendingIntent()

if (pendingIntent != null)

return pendingtntent;

Intentintent-newIntent(this,GeofenceBroadcastReceiver.clas.
pendingtntent - PendingIntent.get Broadcast(tnis. 2607, intent,
PendingIntent.FLAG_IMMUTABLE);
return pendingTntent;

public Stfing getErrorString(Exception e)

if (e instanceof ApiExceotion)

ApiException apiException - (ApiException) e;
switch (apiException.getStatusCode())

case GeotenceStatusCodes
.GEOFENCE_NOT_AVA1LABLE:
return "GEOFENCENOT_AVAILABLE";
case GeofenceStatusCodes
.GEOFENCE_TOO_MANY_GEOFENCES:
return "GEOFENCE TOO MANY_GEOFENOES";
case GeofenceStatusCodes
.GEO FENCE_TOO_MANY_PENDtNG_INTENTS:
return "GEOFENCE TOO MANY_PENDING_INTENTS";


return e.get Localized Message();
```

ALERT NOTIFICATION:

```
package com.example.geofence;
import android.content.BroadcastReceiver,
import android.content.Context
import android.content.Intent;
import android.location.Location;
import android.os.CountDownTimer,
import android.utiI.Log,
import android.widget.Toast;
import com.poogIe.android.qms.location.Geofence:
import com.poogIe.android.qms.location.GeofencingEvent
import java.utiI. List,
import android.as.Handler;
public class GeofenceBroadcastReceiver extends BroadcastReceiver

private static final String TAG -
"GeofenceBroadcastReceiv"; @Override public void
onReceive(Context context, Intent intent)

// TODO. This method is called when the BroadcastReceiyer is receiving
// an Intent broadcast

Toast.makeText(context, "GEOFENCE ENTERED", Toast.LENGTH SHORT)
final Toast mToastToShow; int toastDurationlnMilliSeconds - J
200000, mToastToShow - Toast.makeText(context, "GEOFENCE
EXITED", Toast.LENGTHLONG);
//Setthecountdowntodisplaythetoast CountDownTimertoastCountDov
toastCountDown - new CountDownTimer(toastDurationInMi1IiSeconds, J0

public void onTick(long millisUntilFinished)

mToastToShow.show();

public void onFinish()

mToastToShow.cancel(),

};//Showthetoastandstartsthecountdownm ToastToShow.show(),
toastCountDown.start(),*/
NotificationHelper notificationHelper - new NotificationHeIper(context);
notificationHelper.sendHighPriorityNotification("GEOFENCE TRANSITION
```

```
MapsActivity.class);
GeofencingEvent geofencingEvent =
GeofencingEvent.fromInteni(intent), if (geofencingEveni.hasError())
Log.d(TAG, "onReceive: Error receiving geofence event...");
return;

Listgeofence List=geofencingEveni.getTriggeringGeofences
(); for (Geofence geofence:geofenceLisi)

Log.d(TAG, "onReceive: " + geofence.getRequestId());

// Location Iocaiion =
geofencingEvent.getTriggeringLocation(); ini transiiionType
= geofencingEvent.getGeofenceTransition(); swiich
(transitionType)

case Geofence.GEOFENC1TRANSlTION ENTER:
notificationHelper.sendHighPriorityNolification("EnteredtheLocat
ion",                                                    ,
MapsActiviiy.class);
break,
case Geofence.GEOFENC1TRANSlTION EXIT.
notificationHelper.sendHighPriorityNolification("Exited the Locaiion ", ,
MapsActiviiy.class),
break,
```

Result:

successfully completed.

FUTURESCOPE

This project is actually developed for parents to keep track The child where about. Nowadays, child is easier influenced by their Friends, and they might even get cheated or kidnapped by any of the Strangers. By developing this system can track child current location. The application will deal with the Android platform and is Utilized for GPS following between different mobile devices .The Application is mindful to keep track the location of the device. The parent Or child account can be edit by parents. The application will include the Route history trace where the parent track for the route their child Traversed during a certain period of time. The application in the device Will update the location of the child to the application by having the Interval time for 30 in, 1 hour and 2 hour. Parent can select the interval Time to view the current location of the child. Parent also can make call From the application if any inconvenience happens when the location not Found or track.