

# **NALAIYA THIRAN**

## **WEEK 6 REPORT**

**Phase 3 Description:** Project Design Phase -I (Proposed Solution, Problem Solution Fit, Solution Architecture)

3.3 Prepare problem - solution fit document & Solution Architecture

## Problem Solution Fit

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span> Working parents or busy parents of 0-10 year old kids	<b>6. CUSTOMER CONSTRAINTS</b> <span>CC</span> Lack of affordable, reliable and hassle free technology, Lack of availability of secure and easy UI.	<b>5. AVAILABLE SOLUTIONS</b> <span>AS</span> There are existing solutions that offer location tracking for kids but they are not very efficient, cost effective and reliable all at the same time. This trade off should be addressed.	Explore AS, differentiate
Focus on J&P, tap into BE, understand RC	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <span>J&amp;P</span> Instantaneous tracking and updation of child's location, geofencing and notifying parents of any abnormalities	<b>9. PROBLEM ROOT CAUSE</b> <span>RC</span> Customers have to do this to protect their children from potential threats and to ensure the safety while being far away from them.	<b>7. BEHAVIOUR</b> <span>BE</span> Customers panic, prevent their children from going out on their own, try using easily available technologies	Focus on J&P, tap into BE, understand RC

Identify strong TR & EM	<p><b>3. TRIGGERS</b></p> <p><b>TR</b></p> <p>Coming across news about children being kidnapped and abducted, missing cases being reported.</p> <hr/> <p><b>4. EMOTIONS: BEFORE / AFTER</b> <b>EM</b></p> <p>Before : Feel insecure , worried , scared and confused.</p> <p>After Relieved , calm , confident , happy.</p>	<p><b>10. YOUR SOLUTION</b></p> <p><b>SL</b></p> <p>Building a reliable technology that can address all the customer needs while being reliable and secure ensuring efficient functioning.</p>	<p><b>8. CHANNELS of BEHAVIOUR</b></p> <p><b>CH</b></p> <p><b>8.1 ONLINE</b></p> <p>Tracking their kids location with their mobile phones' GPS, reading news about child safety and other child missing cases.</p> <p><b>8.2 OFFLINE</b></p> <p>Customers accompany their children to ensure safety, send them together with other reliable people, seek for protection in public places.</p>	Identify strong TR & EM
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## **Solution Architecture**

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behaviour and other aspects of the software to project stakeholders.
- Define features, development phases and solution requirements.
- Provide specifications according to which the solution is defined, managed and delivered.

### **FEATURES:**

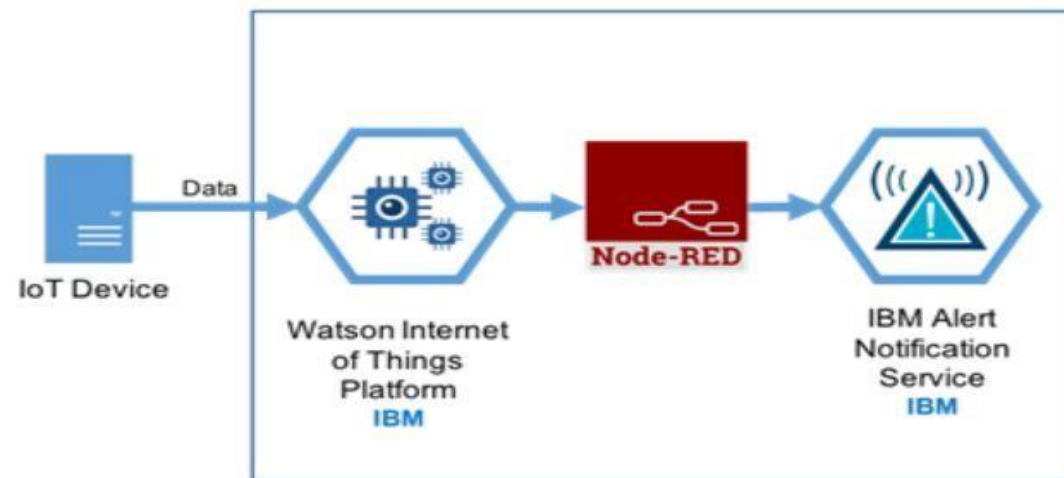
Development of a safety gadget for children to ensure their protection without direct monitoring of their parents. The various features involve:

- GPS
- Geo fence
- Notify alert signal

## SOLUTION:

Track current location of the child using GPS and continuous monitoring of the same is done. When the gadget detects the activity to be outside the given geo fence (as mentioned by the parent or guardian), alert messages or notifications are sent to the registered device, appropriately. Additional features such as recording of messages could be done if any kind of danger is sensed.

## SOLUTION ARCHITECTURE DIAGRAM:



*Architecture of the child safety gadget system*

3.4 Attend the technology trainings as per the training calendar

### IoT-B4-4M6E (Morning Session)-Day-9 (29.09.2022)

The screenshot shows the IBM Watson IoT Platform interface in a web browser. The left sidebar contains navigation icons for Resource list, Service Details, and IBM Watson IoT Platform. The main content area displays the 'weather\_deviceid' device details, including a table of recent events.

Event	Value
IoTSensor	{"temp":70,"Humid
IoTSensor	{"temp":98,"Humid
IoTSensor	{"temp":93,"Humid
IoTSensor	{"temp":63,"Humid
IoTSensor	{"temp":47,"Humid

Overlaid on the right is a Python script editor window titled 'ibmiotpublishsubscribe.py - C:/Users/hp/Desktop/ibmiotpublishsubscribe.py (3.7.0)'. The script contains the following code:

```
import time
import sys
import ibmiotf.application
import ibmiotf.device
import random

#Provide your IBM Watson Device Credentials
organization = "bxobbs"
deviceType = "weather_Device1"
deviceId = "weather_deviceid"
authMethod = "token"
authToken = "weather@123"

# Initialize GPIO

def myCommandCallback(cmd):
    print("Command received: %s" % cmd.data['command'])
    print(cmd)

try:
    deviceOptions = {"org": organization, "type": deviceType, "id": deviceId}
    deviceCli = ibmiotf.device.Client(deviceOptions)
```

The bottom status bar indicates '0 Simulations running' and 'Ln: 9 Col: 1'.

Application DetailsNode-RED: nodeService DetailsIBM Watson IoTNode-RED DashboardAbout UsMIT App Inventor

Not secure | ai2.appinventor.mit.edu/#5949937524015104

Incognito

Search Components...

User Interface

Button

CheckBox

DatePicker

Image

Label

ListPicker

ListView

Notifier

PasswordTextBox

Slider

Spinner

Switch

TextBox

TimePicker

WebView

Layout

Media

Drawing and Animation

☐ Display hidden components in Viewer

Phone size (505,320)

Smart Home monitoring and controlling

Monitoring layout

Temperature

Humidity

Light ON

Light Off

Screen1

HorizontalArrangement1

Label1

Label2

TextBox1

HorizontalArrangement3

Label3

TextBox2

HorizontalArrangement2

Button1

Button2

Media

Upload File ...

Button2

BackgroundColor

Red

Enabled

☒

FontBold

☐

FontItalic

☐

FontSize

14.0

FontTypeface

default

Height

Automatic...

Width

Automatic...

Image

None...

Shape

default

ShowFeedback

☒

Text

Light Off

Activate Windows

Go to Settings to activate Windows.


TextAlignment

center: 1

Application x Node-RED x Service D x IBM Watsc x Node-RED x About Us x MIT App li x https://no x mit ai2 - A x +

Not secure | ai2.appinventor.mit.edu/#5949937524015104

Incognito

 Projects Connect Build Settings Help My Projects View Trash Guide Report an Issue English rachuri.harish23@gmail.com

ibmapplication Screen1 Add Screen Remove Screen Publish to Gallery Designer Blocks

Blocks

Logic

Math

Text

Lists

Dictionaries

Colors

Variables

Procedures

Screen1

HorizontalArrangemer

Label1

Label2

TextBox1

HorizontalArrangemer

Label3

TextBox2

HorizontalArrangemer

Rename Delete

Viewer

when Clock1 .Timer

do

set Web1 . Url to https://node-red-gsaid-2022-10-03.eu-gb.mybluemi...

call Web1 .Get

when Web1 .GotText

url responseCode responseType responseContent

do

set TextBox1 . get responseType pairs key temp

call Web1 .JsonTextDecodeWithDictionaries

set responseType to jsonText get responseContent

notFound not found

set TextBox2 . Text to look up in pairs key humidity

call Web1 .JsonTextDecodeWithDictionaries

notFound not found

jsonText get responseContent

0 0

Show Warnings

Activate Windows

Go to Settings to activate Windows.



## IoT-B4-4M6E (Evening Session)-Day-10 (01.10.2022)

The screenshot displays the IBM Cloud IoT Dashboard in a web browser. The browser's address bar shows the URL `br1jua.internetofthings.ibmcloud.com/dashboard/...`. The dashboard's left sidebar contains a vertical menu with icons for various IoT functions. The main content area is titled "Simulations" and includes a sub-header "Import/Export simulation". Below this, a card displays "50 Simulations Running" and a "+ New Simulation" button. The card also shows "Device Type harish123" and a "1 Device" section with a device named "trainingid". At the bottom of the card, there are two buttons: "1 x Create Simulated Device" and "Use Registered Device". A "Configure Event" link with a toggle switch and a trash icon is also visible. In the bottom right corner, a Windows watermark reads "Activate Windows Go to Settings to activate Windows."

IBM Watson IoT Platf... IBM App Developmen... Node-RED : node-red x ci-pipeline Dashboard x IBM Cloud Account x Session 10,11,12.pptx x

node-red-ejtci-2022-10-01.eu-gb.mybluemix.net/red/#flow/4fb60a85d76de085

Apps Simple Arduino Sol... Arduino Irrigation a... ACS712 Current Se... Acs712 current sen... How to Measured... Free Online YouTub... Make Your Own PC... 1\_Zigbee\_Configure...

# Node-RED

Deploy

filter nodes

Flow 1

common

- inject
- debug
- complete
- catch
- status
- link in
- link call
- link out
- comment

function

- function

msg payload

Hello Node-RED!

debug

all nodes all

10/1/2022, 8:12:19 PM node: f2f2649a.0d0d98

msg.payload : string[15]

"Hello Node-RED!"

Activate Windows  
Go to Settings to activate Windows.

The screenshot shows the Node-RED web interface in a browser. The top bar contains several open tabs, including 'Node-RED : node-red'. The address bar shows the URL 'node-red-ejtci-2022-10-01.eu-gb.mybluemix.net/red/#flow/4fb60a85d76de085'. The left sidebar has a 'filter nodes' search bar and two categories of nodes: 'common' and 'function'. The 'common' category includes nodes like 'inject', 'debug', 'complete', 'catch', 'status', 'link in', 'link call', 'link out', and 'comment'. The 'function' category includes a 'function' node. The main workspace, titled 'Flow 1', shows a flow with two nodes: an 'inject' node with the text 'Hello Node-RED!' and a 'msg payload' node. A curved line connects the output of the 'inject' node to the input of the 'msg payload' node. The right sidebar has a 'debug' tab selected, showing a list of nodes and a log of messages. The log shows a message at '10/1/2022, 8:12:19 PM' from node 'f2f2649a.0d0d98' with the payload 'msg.payload : string[15]' and the value '"Hello Node-RED!"'. At the bottom of the right sidebar, there is a message: 'Activate Windows. Go to Settings to activate Windows.'

IBM Watson IoT Platform  
br1jua.internetofthings.ibmcloud.com

ci-2022-10-01.eu-gb.mybluemix.net/ui/#/0?socketid=TkbNPjBXIK\_OgJpAAAB

Arduino Irrigation a... ACS712 Current Se... Acs712 current sen... How to Measured... Free Online YouTub... Make Your Own PC... 1\_Zigbee\_Configure...

NAME	VALUE	UNIT	LAST MEASURED
Humidity	37	%	2022-10-01 10:00:00
Temperature	3	°C	2022-10-01 10:00:00

Default

Humidity

0

37

100

%

Temperature

0

3

100

°C

Activate Windows  
Go to Settings to activate Windows.