# SIGNS WITH SMART CONNECTIVITY FOR BETTER ROAD SAFETY

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**CONTENTS**

# Introduction:

Roads are the foremost source of linking between cities and villages. Due to the ease of traveling by road, vehicles have become the main way people travel. The chances of vehicular accidents (Vas) have increased with the growing number of vehicles on the roads. During a journey, one does not know what will happen on the next road, particularly during bad weather conditions (BWC). In such a situation, driving can be difficult due to bad visibility, which can lead to an accident. It was also noticed that in BWC, multiple vehicle collisions (MVCs) can occur owing to delays in receiving information about an incident. According to one study by the Islamabad police, there were 9582 accidents from 2016 to 2017 all over Pakistan, involving 11,317 vehicles, leading to 5047 fatalities and 12,696 persons injured Digital technologies like the Internet of Things (IOT) are reshaping road safety measures. Many technology initiatives are undertaken the world over to make smarter and safer roads, the ones that can interact with traffic and pedestrians. Assuming that by giving in vehicle technology information to the driver, accidents can be averted, several technology-based products have been developed. The latest technology researchers are working on is based on the Internet of Things (IOT). IOT is all about data.

Data is becoming a valuable resource for our world. Many sectors and industries have adopted IoT to reduce errors and improve performance in manufacturing, energy, health care, and communication. The WHO describes different measures that can be implemented with minimal economic impacts in its “Save LIVES: Road Safety Technical Package”. A cornerstone of these steps is realizing economic systems for “monitoring road safety by strengthening data systems”. Meanwhile, a key theme in the package is motivating the adoption of a Safe System approach, which is a holistic approach to road safety that parts from traditional management solutions by emphasizing safety by design. Mobile-phone-based applications use built-in sensor data to detect the speed limit based on environmental situations.

The main contributions of this research are,

1. A brief survey on the state of the art related to pre-accident as well as post-accident models, frameworks, and techniques.

2.Identification and reporting of limitations in previous studies related to accident detection.

3.The concept of a smart road with an event-sensing capability, plus implementation and testing through various experiments.

4. Demonstration of a new and modern way to quickly detect accidents and communicate with nearby vehicles and EOCs. The risks for loss of life, injuries, and other damage may increase if an incident is not reported to an EOC in a timely fashion. Lives can be saved by sending timely information about an accident through an automated mechanism. Moreover, quick automobile accident detection and an alert system are required to protect approaching vehicles against an MVC. Several methods have been implemented in advanced vehicles (Avs) for avoiding an accident. An accident threat is detected through sensors installed in vehicles or by using smartphone sensors. Previous researchers have used accelerometers, smoke detectors, infrared (IR) obstacle sensors, proximity sensors, and bio-sensors to detect an accident.

## Project Overview:

The main aim of this project is to help people automate the roads by providing them with a Web App through which they can monitor the parameters of the road like temperature, speed limit, and visibility of the road. They also show guides for schools and provide services of displaying hospitals, and restaurant signs accordingly.

## Purpose:

A large amount of research is being carried out in the domain of accident avoidance and accident alarms by a large number of researchers and practitioners. To avoid accidents, many approaches are utilized to enhance safety. For ease of reference, the literature on accident detection and avoidance is separated into three approaches: stand-alone, cooperative, and hybrid. Stand-alone approaches use sensors, such as radar and light detection and ranging (LiDAR), for accident avoidance and detection, whereas cooperative approaches rely on V2X technology and hybrid approaches.

## LITERATURE SURVEY:

## Abstract:

In present Systems the road signs and the speed limits are Static. But the road signs can be changed in some cases. We can consider some cases when there are road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized. This project proposes a system that has digital signboards on which the signs can be changed dynamically. If there is rain fall then the roads will be slippery and the speed limit would be decreased. There is a web app through which you can enter the data on road diversions, accident-prone areas, and information sign boards can be entered through the web app. This data is retrieved and displayed on the signboards accordingly

## Introduction:

An automated deep learning (DL)-based system was developed for detecting accidents from video data. The system uses visual components in temporal order to represent traffic collisions. As a result, the model architecture is composed of a visual-features-extraction phase followed by transient pattern identification. Convolution and recurrent layers are used in the training phase to learn visual and temporal features. In public traffic accident datasets, an accuracy of 98% was attained in the detection of accidents, demonstrating a strong capacity for detection independent of the road structure. The solution is limited to automobile crashes, not motorbikes, bicycles, and pedestrians. Furthermore, the model makes mistakes when determining accident segments under poor illumination (e.g., at night), at low resolutions, and when there are occlusions. An accident management system was proposed in that makes use of cellular technology in public transportation. This method enables communication across various components, including those in ambulances, RSUs, and servers. Furthermore, in this system, an optimal route planning algorithm (ORPA) is proposed to optimize aggregate spatial utilization of road networks while lowering the travel cost to operate a vehicle. The ORPA was evaluated through simulations, and findings were compared with other current algorithms. In congested areas, the proposed method can also be used to offer fast routes for ambulances. All vehicles, including ambulances, are required to have a route indicator installed, as well as the ability to use remote correspondence. The ORPA outperformed in terms of average speed and travel duration, according to the evaluation data. The proposed system only works for predicted patterns and can fail due to the unpredicted behavior of traffic.

## Existing problem:

### Safe System Approach

The Safe System (SS) approach to transport networks originated with the “Safe Road Transport System” model developed by the Swedish Transport Agency. In its essence, the approach migrates from the view that accidents are largely and automatically the driver’s fault to a view that identifies and evaluates the true causes of accidents. Through the categorization of safety into the safety of three elements (vehicle, road, and road user), SS minimizes fatalities and injuries by controlling speeds and facilitating prompt emergency response. The model has been widely adopted since its introduction and is currently motivated by the WHO as a basis for road safety planning, policy-making, and enforcement

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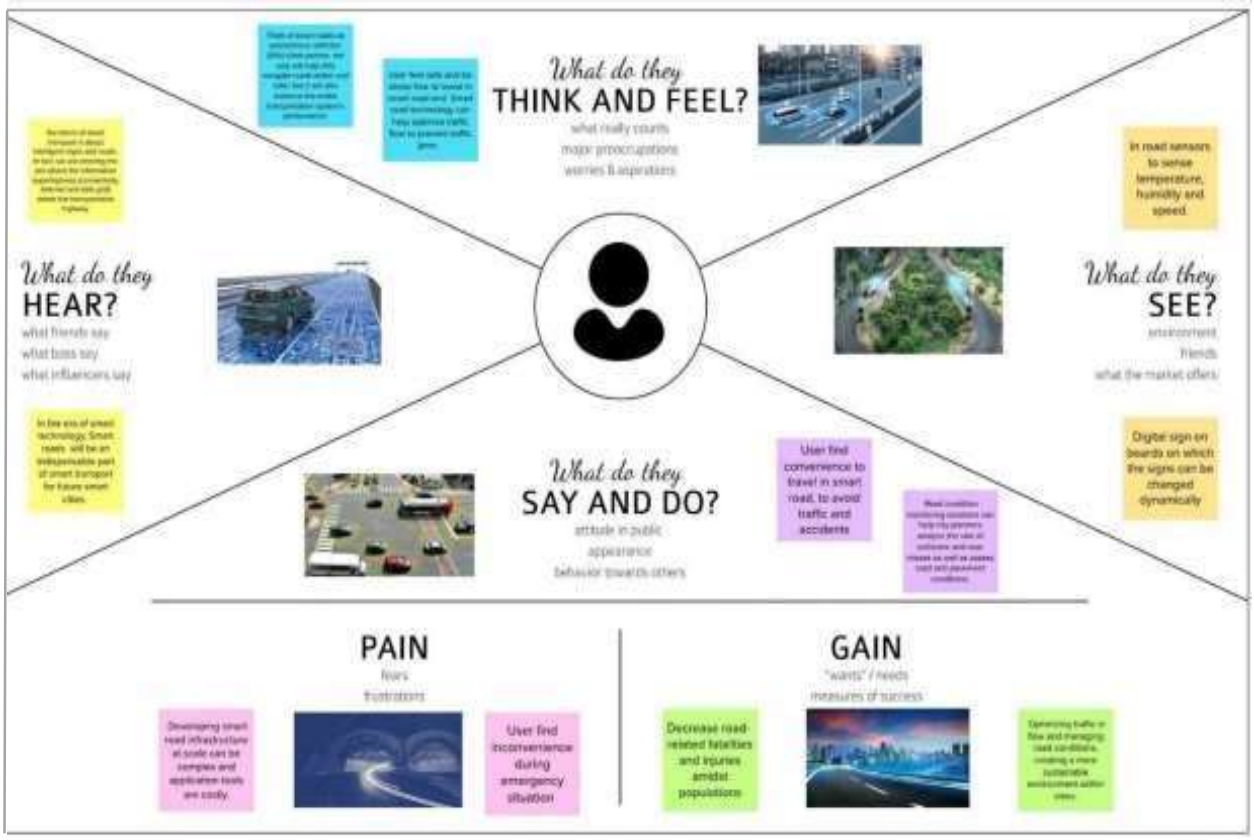
## Problem Statement Definition

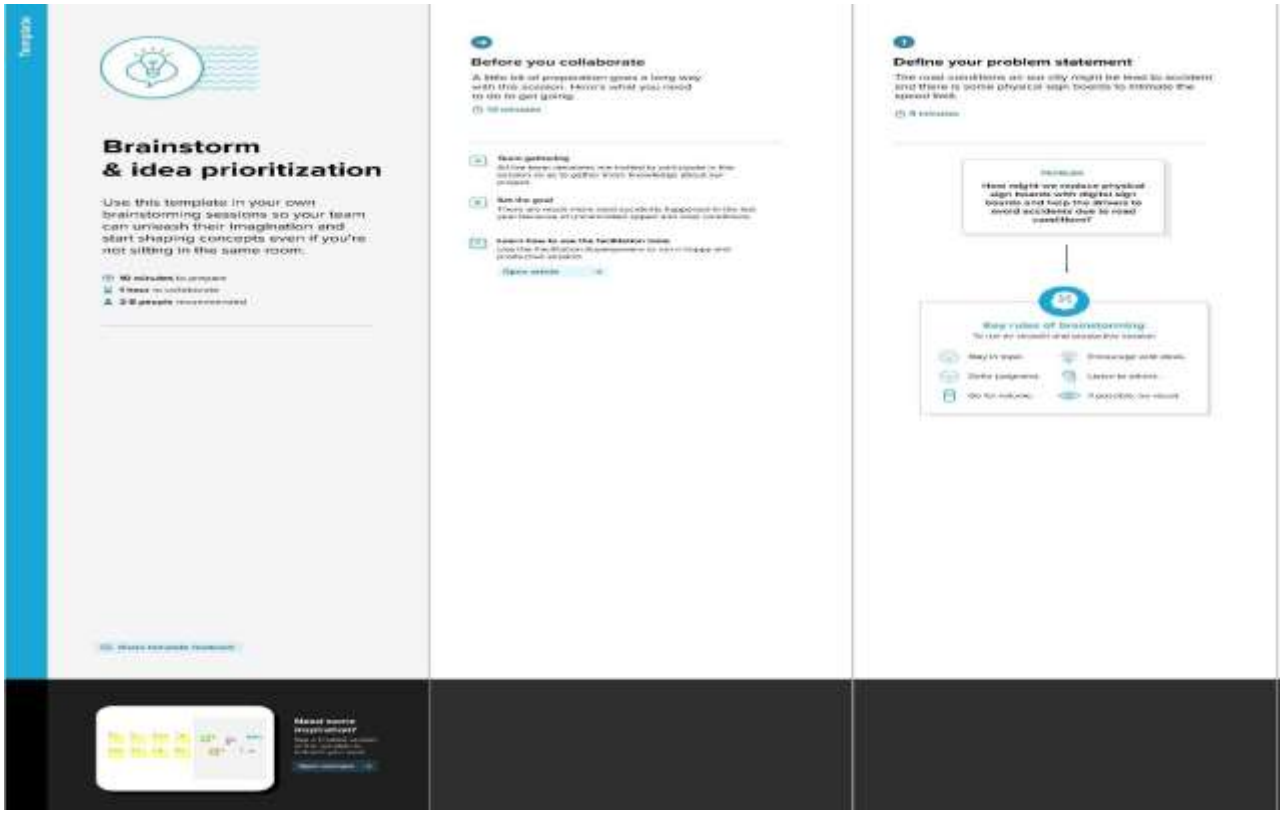
A problem statement is a concise description of an issue to be addressed or a condition to be improved upon. It identifies the gap between the current (problem) state and desired (goal) state of a process or product. Focusing on the facts, the problem statement should be designed to address the Five Ws. The first condition of solving a problem is understanding the problem, which can be done by way of a problem statement. In present Systems the road signs and the speed limits are Static. But the road signs can be changed in some cases. We can consider some cases when there are road diversions due to heavy traffic or due to accidents then we can change the road signs accordingly if they are digitalized. This project proposes a system that has digital signboards on which the signs can be changed dynamically. If there is rain fall then the roads will be slippery and the speed limit would be decreased. There is a web app through which you can enter the data on road diversions, accident prone areas, and information sign boards can be entered through the web app. This data is retrieved and displayed on the signboards accordingly.

## IDEATION & PROPOSED SOLUTION:

### Empathy Map Canvas:



## Ideation & Brainstorming:

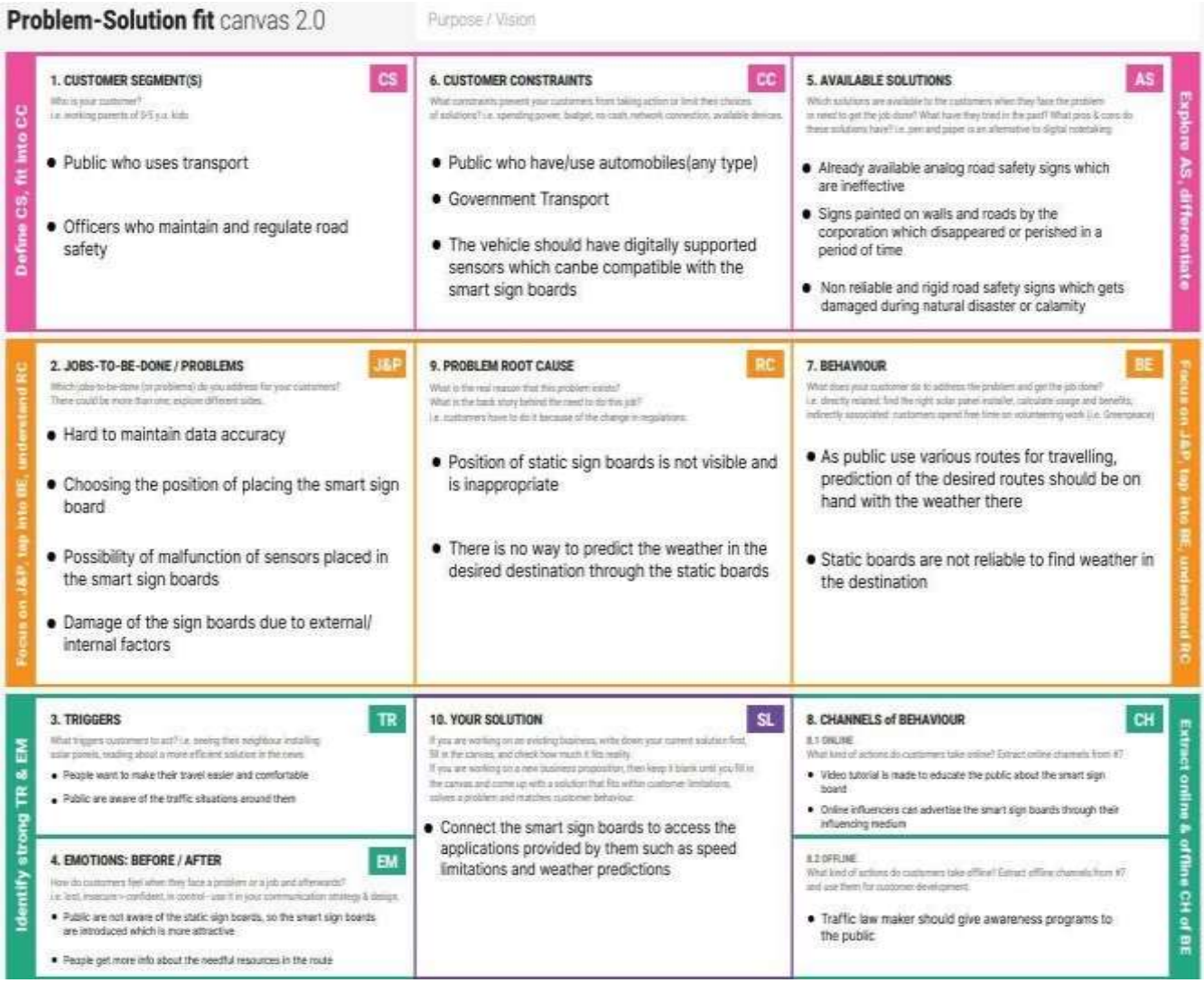



## Proposed Solution:

The project team shall fill in the following information in the proposed solution template.

| **Parameter** | **Description** |
|---|---|
| Problem Statement(Problem to be solved) | To replace the static signboards, smart connected sign boards are used which get the speed limitations from a web app using weather API and update automatically. |
| Idea/Solution description | Predicting the speed limit from data acquired through weather map and pass through a web user interface which in turn used by user |
| Novelty/Uniqueness | Controlling the speed limit by weather map. |
| Social Impact/Customer Satisfaction | Based on traffic diversion signs ,guide signs and warning signs are displayed to the public. |
| Business Model(Revenue Model) | Smart connectivity and better road safety model. |
| Scalability of the Solution | The process of understanding and operating this Model is easy and its highly scalable with proper efficiency. |

# Problem Solution fit:



## REQUIREMENTANALYSIS:

## Functional requirement:

| FR No. | Functional Requirement (Epic) | Sub Requirement (Story / Sub-Task) |
|---|---|---|
| FR-1 | **User Visibility** | Sign Boards should be made with LED's which are bright colored and are capable of attracting the drivers attention but it should also not be too distracting or blinding cause it may lead to accidents. |
| FR-2 | **User Need** | The smart sign boards should be placed frequently in places it is needed and less in places where it is not needed much to avoid confusion for the user during travel. |
| FR-3 | **User Understanding** | For better understanding of the driver, the signs should be big, clear and legible and it can also include illustrations which will make it easily understandable to the driver. |
| FR-4 | **User Convenience** | The display should be big enough that it should even be visible from far distance clearly. |

## Non-Functional requirements:

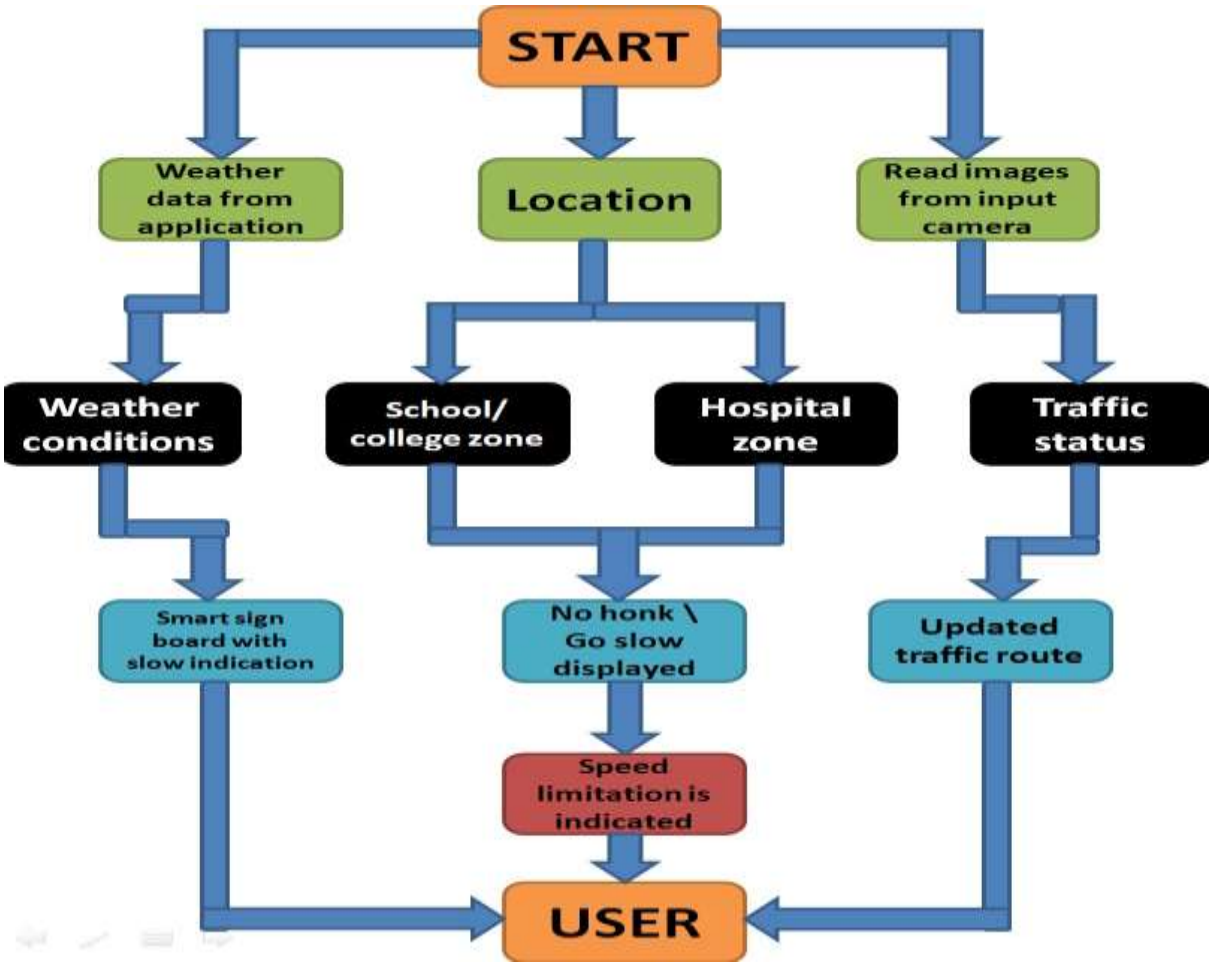
| FR No. | Non-Functional Requirement | Description |
|---|---|---|
| NFR-1 | **Usability** | It should be able to Upgrade and Update when there is a need for it. |
| NFR-2 | **Security** | It should have good security system so that no other person is able to hack and display their own directions. |
| NFR-3 | **Reliability** | It should be able to display to information correctly and error-free. |
| NFR-4 | **Performance** | It should be able to automatically update itself when certain weather or traffic problem occurs. |
| NFR-5 | **Availability** | It should be available 24/7 so that it can be beneficial to the customer i.e the driver. |
| NFR-6 | **Scalability** | It should be able to easily change and upgrade according to change and need in requirement. |

**PROJECTDESIGN:**

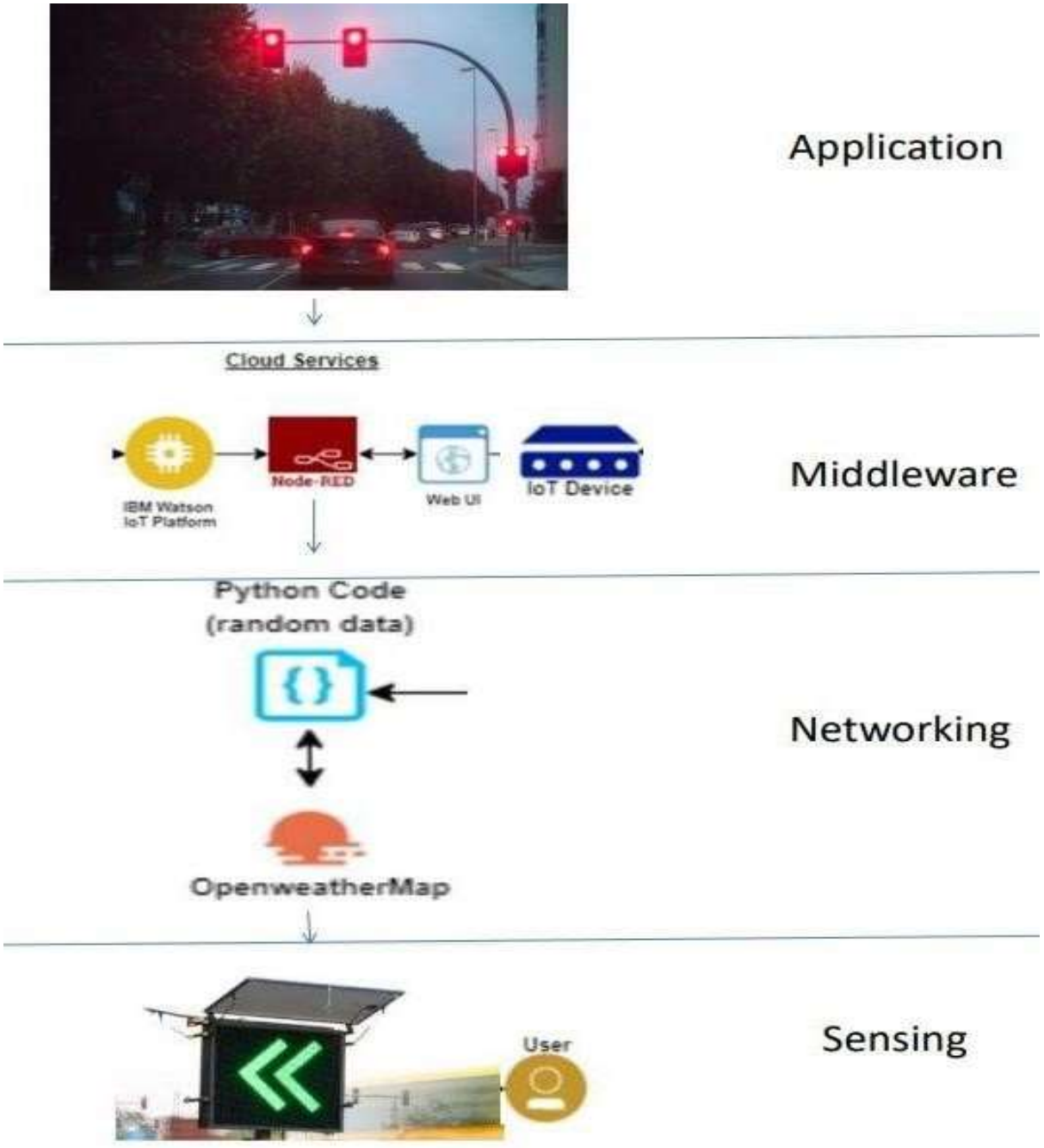
Project design is an early phase of the project lifecycle where ideas, processes, resources, and deliverables are planned out. A project design comes before a project plan as it's a broad overview whereas a project plan includes more detailed information.

**Data Flow Diagrams:**

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



## Solution &Technical Architecture:



## User stories:

Use the below template to list all the user stories for the product.

| User Type | Functional Requirement (Epic) | User Story Number | **User Story/Task** | **Acceptance crite ria** | Priority | Release |
|---|---|---|---|---|---|---|
| Customer (Mobile user) | Registration | USN-1 | **I can get my speed limitation using weather application .** | **I can receive speed limitations** | High | Sprint-1 |
| | | USN-2 | **As a user, I can register for the application by entering my email, password, and confirming my password. As a user,** | **I can access my account / dashboard** | Medium | Sprint-2 |
| | | USN-3 | **As a user, I can increase or decrease my speed according to the weather change** | **I can increase or decrease my speed** | High | Sprint-1 |
| | | USN-4 | **As a user, I can I get my traffic diversion signs depending on the traffic and the fatal situations.** | **I can access my traffic status ahead in my travel** | Medium | Sprint-1 |
| | Login | USN-5 | **As a user, I can log into the open weather map by entering email & password** | **I can access the application through my Gmail login** | High | Sprint-2 |
| | Interface | USN-6 | **As a user the interface should be simple and easily accessible** | **I can access the interface easily** | High | Sprint-1 |
| Customer (Web user) | Data generation | USN-7 | **As a user I use open weather application to access the data regarding the** | **I can access the data regarding the weather through the** | High | Sprint-1 |

**PROJECT PLANNING & SCHEDULING:**

The definition of a sprint is a dedicated period in which a set amount of work will be completed on a project. It's part of the agile methodology, and an Agile project will be broken down into a number of sprints, each sprint taking the project closer to completion.

## Sprint Planning &Estimation:

Use the below template to create product backlog and sprint schedule.

| Sprint | Functional Requirement (Epi c) | User Story Number | User Story/Task | Story Points | Priority |
|---|---|---|---|---|---|
| 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 |
| Sprint-1 | | USN-2 | As a user, I will receive confirmation email once I have registered for the application | 1 | High |
| Sprint-1 | | USN-3 | As a user, I can register for the Application through Facebook | 2 | Low |
| Sprint-1 | | USN-4 | Asa user , I can register for the application through Gmail | 2 | Medium |
| Sprint-1 | Login | USN-5 | As a user, I can log into the application by entering email & password | 1 | High |
| Sprint-1 | Dashboard | USN-6 | As a user, I can log into the application by entering email & Password and access all the resources and services available | 2 | High |

## Sprint Delivery Schedule:

Project Tracker, Velocity & Burn down Chart:

| TITLE | DESCRIPTION | DATE |
|---|---|---|
| Literature Survey & Information Gathering | A literature review is a comprehensive summary of previous researches on the topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area Of research. | 3September2022 |
| Prepare Empathy Map | An empathy map is a collabor ative tool teams can use to gain a deeper insight into their customers. It helps us to understand the customers' pain , gain and difficulties from their point of view. | 10September2022 |
| Ideation-Brainstorming | Brainstorming is a group problem-solving method that helped us together and organize various ideas and thoughts from team members. | 17 September2022 |
| Define Problem statement | The Customer Problem Statement helps us to focus on what matters to create experiences people will love. A well-articulated customer problem statement allowed us to find the ideal solution for the challenges customers face. | 19 September2022 |
| Problem Solution Fit | It helped us understand and analyze all.The thoughts of our customer , their choice of options, roblems, rootcause, Behavior and emotions. | 26 September2022 |

## 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).

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

**Burn down Chart:**

A burn-down chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as scrum. However, burn down charts can be applied to any project containing measurable progress over time.

## CODING & SOLUTIONING:

(Explain the features added in the project along with code):

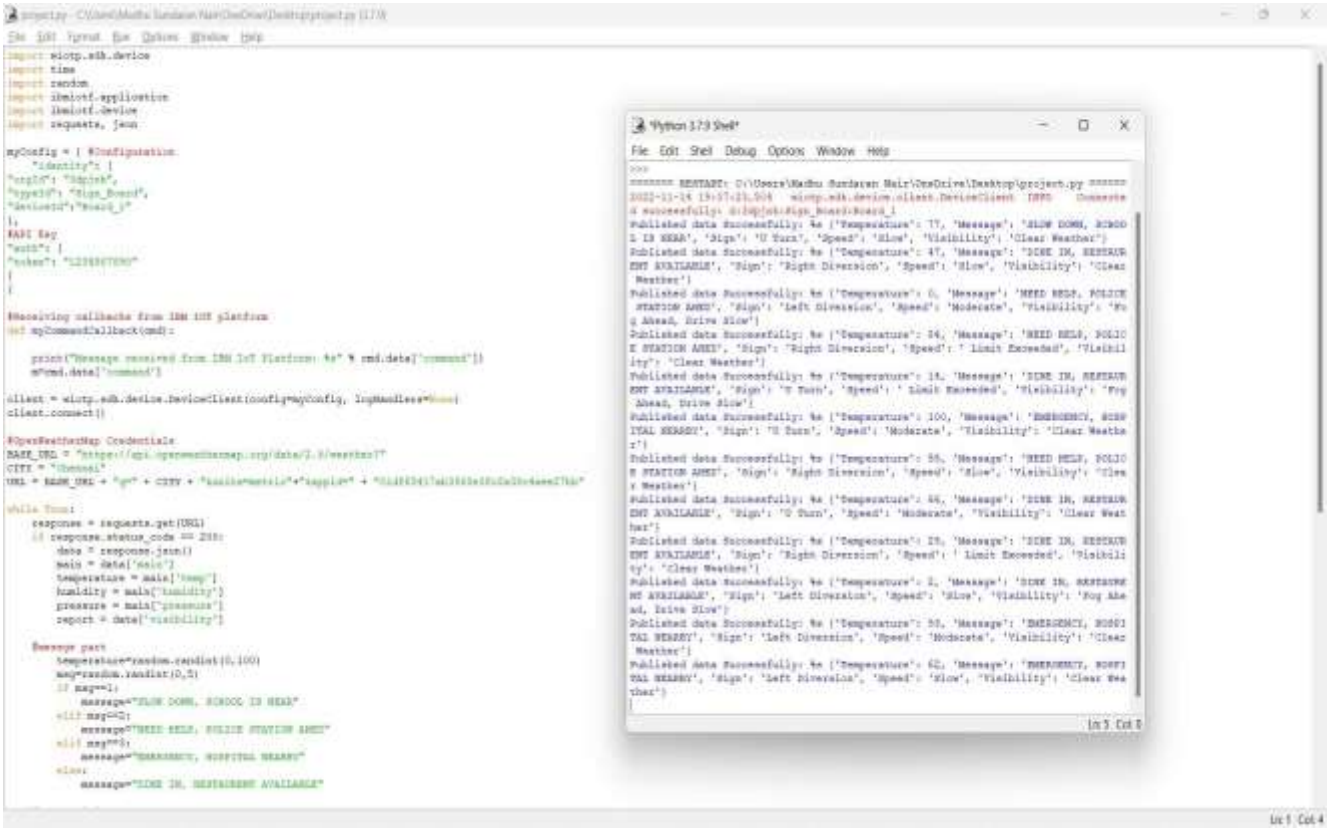
Feature 1 (coding and result):

```
importwiotp.sdk.devi
ce import time
import random
importibmiotf.applic
ationimport
ibmiotf.device
import requests, json
myConfig = {
#Configuration
"identity": {
"orgId": "3dpjnk",
"typeId": "Sign_Board",
"deviceId":"Board_1"},
#API Key
"auth": {
"token": "1234567890"
}
}
#Receiving callbacks from IBM IOT
platformdefmyCommandCallback(cmd):
print("Message received from IBM IoT Platform: %s" % cmd.data['command'])
m=cmd.data['command']
client =
wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers=None)
client.connect()
```

```
#OpenWeatherMap Credentials
CITY = "Nagercoil"
URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid=" +
"01df65417ab3968e3fc2a38c4aee27bb"
while True:
response =
requests.get(URL) if
response.status_code ==200:
data = response.json()
main = data['main']
temperature
=main['temp']
humidity =
main['humidity']pressure =
main['pressure'] report =
data['visibility']
#messge part
msg=random.randint(0,5)
if msg==1:
message="SLOW DOWN, SCHOOL IS NEAR"
elifmsg==2:
message="NEED HELP, POLICE STATION AHED"
elifmsg==3:
message="EMERGENCY, HOSPITAL NEARBY"
elifmsg==4:
message="DINE IN, RESTAURENT AVAILABLE"
else:
message=""
#Speed Limit part
speed=random.randint(0,150)
if speed>=100:
speedMsg=" Limit Exceeded"
```

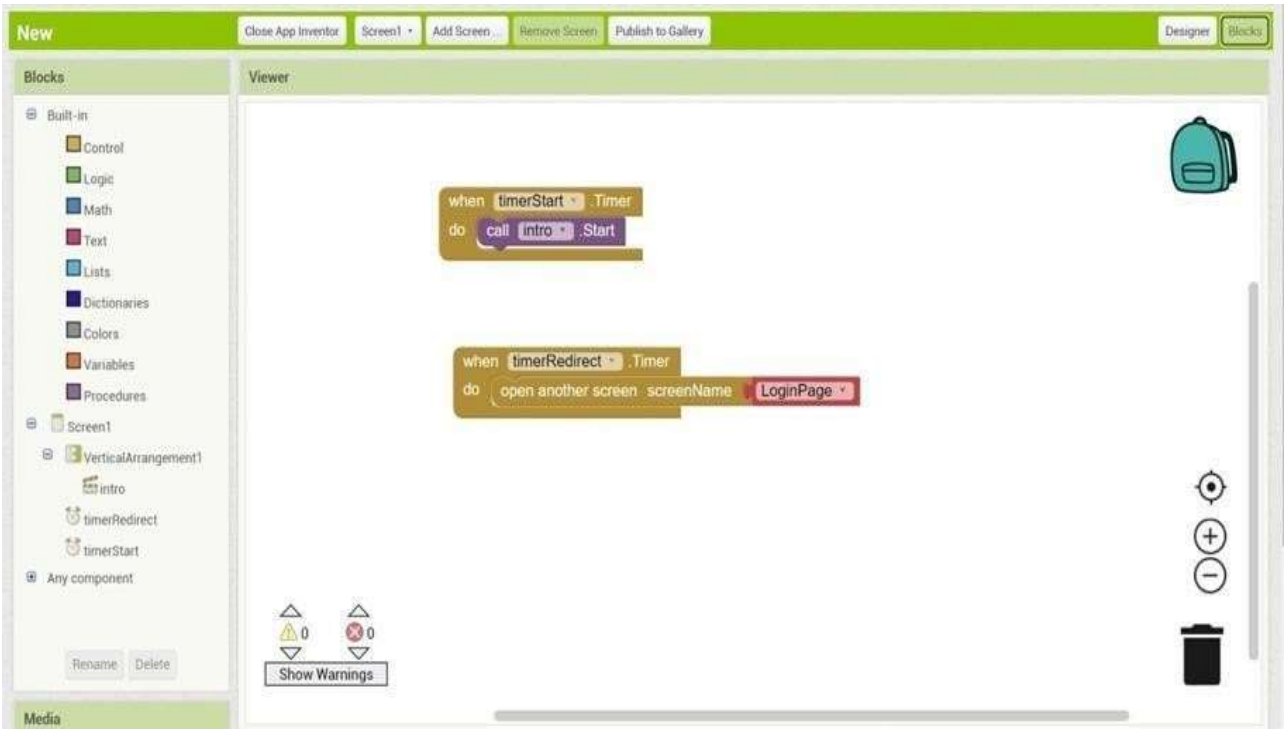
```
elif speed>=60 and speed<100:
speedMsg="Moderate"
else:
speedMsg="Slow"
#Diversion part
sign=random.randint(0,5)
if sign==1:
signMsg="Right Diversion"
elifsign==3:
signMsg="Left Diversion"
elifsign==5:
signmsg="U Turn"
else:
signMsg=""
#Visibility
if temperature < 24:
visibility="Fog Ahead, Drive Slow"
elif temperature < 20:
visibility="Bad Weather"
else:
visibility="Clear Weather"
else:
print("Error in the HTTP request")
myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg, 'Speed':speedMsg,
'Visibility':visibility}
client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)#PUBLISHING TO IOT WATSON
print("Published data Successfully: %s",
myData)client.commandCallback =
myCommandCallbacktime.sleep(5)
client.disconnect()
```

Output:

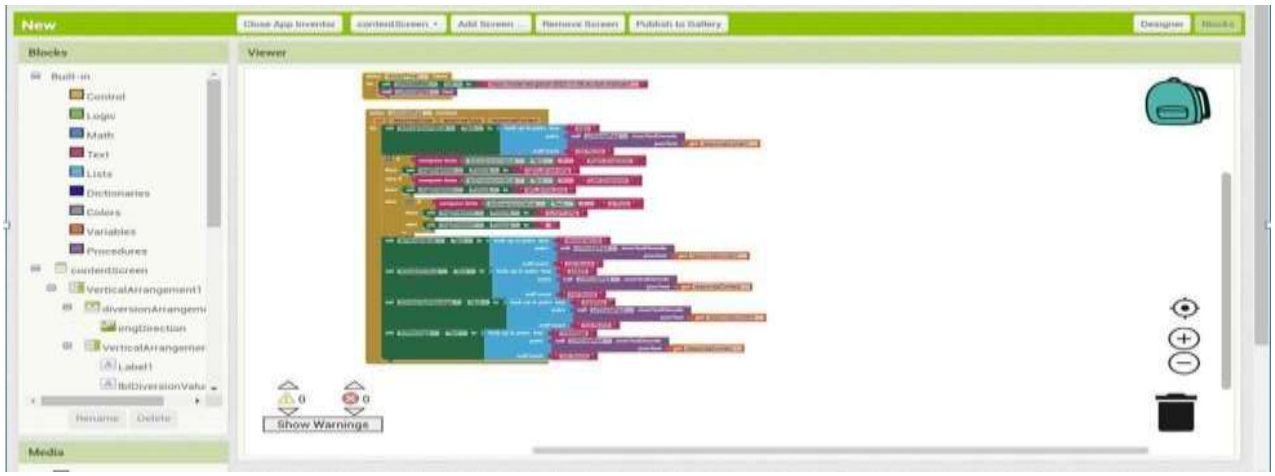

*Python 3.7.9 Shell*
File Edit Shell Debug Options Window Help
>>>
======== RESTART: D:\Users\Madhu Sundaran Nair\OneDrive\Desktop\project.py ======
Published data Successfully: %s {'Temperature': 77, 'Message': 'SLOW DOWN, SCHOOL IS NEAR', 'Sign': 'U Turn', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 47, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'Right Diversion', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 0, 'Message': 'NEED HELP, POLICE STATION NEED', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Fog Ahead, Drive Slow'}
Published data Successfully: %s {'Temperature': 24, 'Message': 'NEED HELP, POLICE STATION NEED', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 14, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'U Turn', 'Speed': ' Limit Exceeded', 'Visibility': 'Fog Ahead, Drive Slow'}
Published data Successfully: %s {'Temperature': 100, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'U Turn', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 55, 'Message': 'NEED HELP, POLICE STATION NEED', 'Sign': 'Right Diversion', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 46, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'U Turn', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 25, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'Right Diversion', 'Speed': ' Limit Exceeded', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 2, 'Message': 'DINE IN, RESTAURENT AVAILABLE', 'Sign': 'Left Diversion', 'Speed': 'Slow', 'Visibility': 'Fog Ahead, Drive Slow'}
Published data Successfully: %s {'Temperature': 50, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Left Diversion', 'Speed': 'Moderate', 'Visibility': 'Clear Weather'}
Published data Successfully: %s {'Temperature': 62, 'Message': 'EMERGENCY, HOSPITAL NEARBY', 'Sign': 'Left Diversion', 'Speed': 'Slow', 'Visibility': 'Clear Weather'}
Ln: 5 Col: 0

**Feature 2: (MITAPPINVENTER):**

**MIT APP INVENTOR: ICON PAGE:**


New
Close App Inventor
LoginPage
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Viewer
Show Warnings

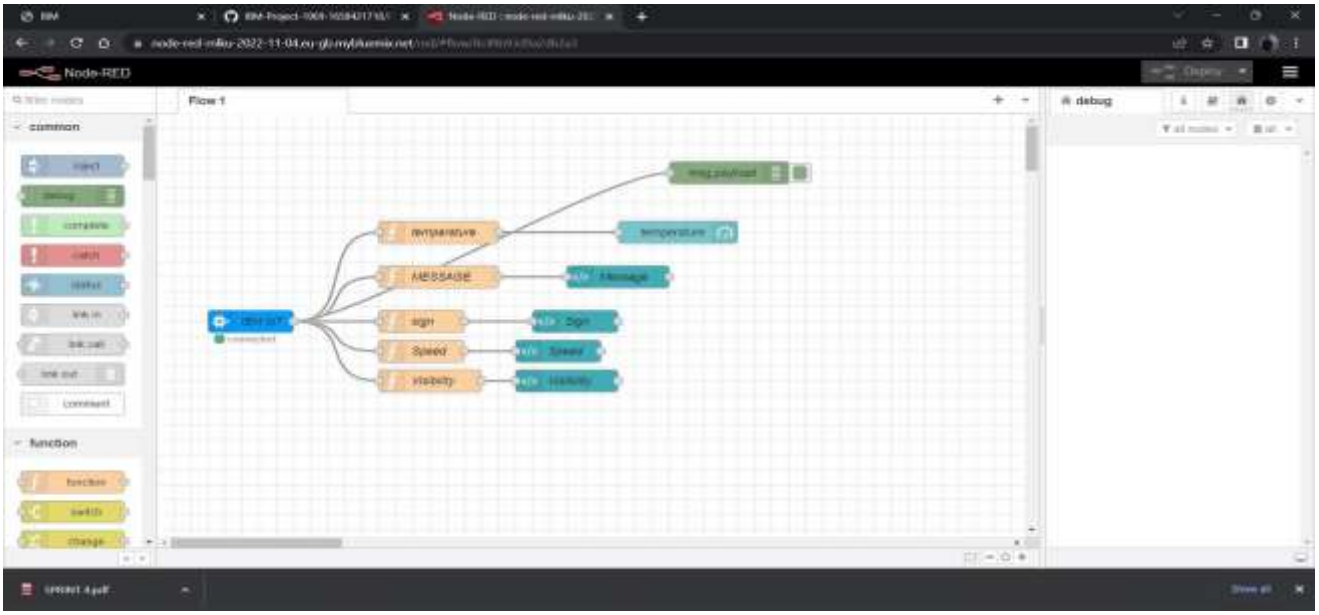

New
Close App Inventor
contentScreen
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Viewer
Show Warnings


New
Close App Inventor
contentScreen
Add Screen ...
Remove Screen
Publish to Gallery
Designer
Blocks
Palette
Viewer
Components
Properties
Display hidden components in Viewer
Phone size (505,320)
Diversion
Temperature 0 K
Speed
VerticalArrangement1
contentScreen
Media

## TESTING:

Test cases help guide the tester through a sequence of steps to validate whether a software application is free of bugs, and working as required by the end-user. Learning how to write test cases for software requires basic writing skills, attention to detail, and a good understanding of the application under test (AUT).

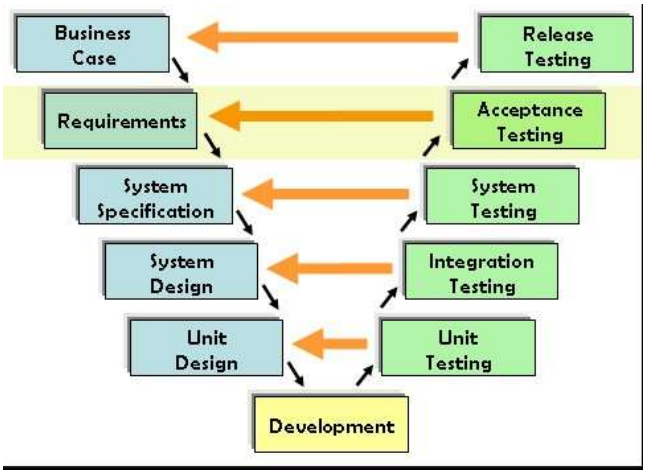
## Test Cases:




**User Acceptance Testing:**

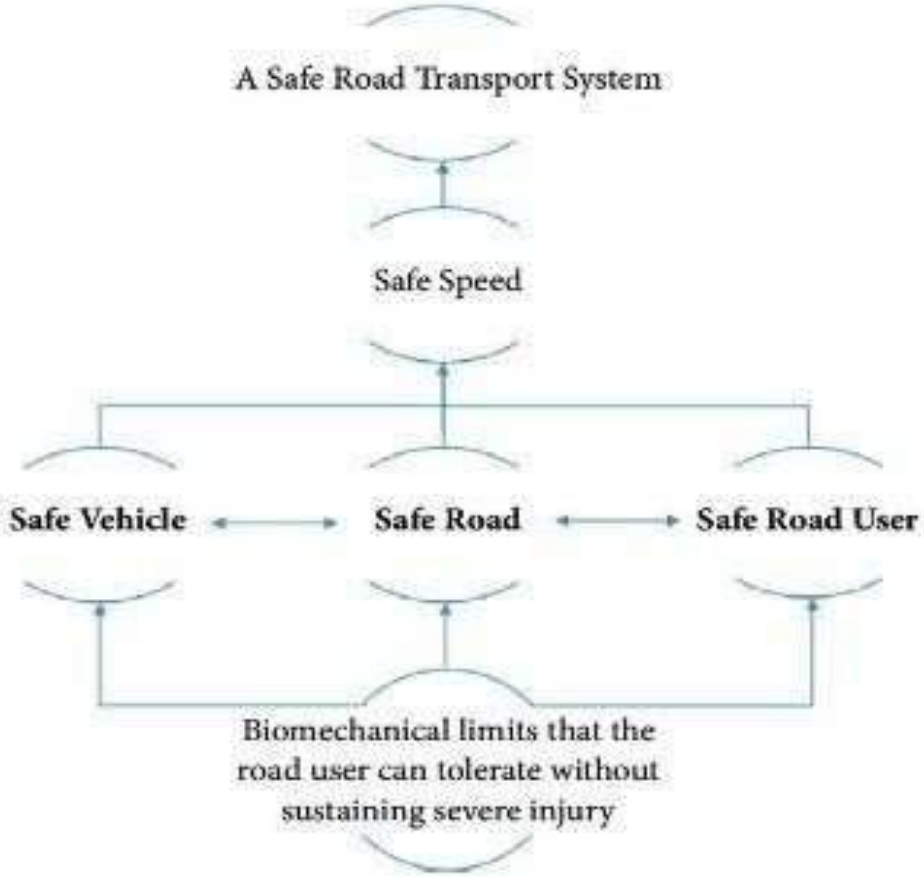
UAT consists, in practice, of people from the target audience using the application. The defects they find are then reported and fixed. This scenario is what most closely resembles “the real world.” The process allows users to “get their hands dirty” with the application. They can see if things work as intended.

The main purpose of UAT is to validate end-to-end business flow. It does not focus on cosmetic errors, spelling mistakes, or system testing. User Acceptance Testing is carried out in a separate testing environment with a production-like data setup. It is a kind of black box testing where two or more end-users will be involved.



**RESULTS:**

Performance Metrics:



**ADVANTAGES & DISADVANTAGES:**

## Advantages:

Connected vehicles have various benefits such as

➢ Multi modal sensors and edge computing help speed up the flow of traffic with real-time processing, reducing congestion and emissions.

➢ Smart road technology can assist in optimizing traffic flow

➢ It will manage road conditions, creating a more sustainable environment within cities.

➢ Improved control and safety can be achieved through IoT-enabled cars. In case of over-speeding, the notification gets displayed.

➢ Ensuring a safe driving experience with real-time assistance, navigation, and even monitoring driving patterns and any emergency. Additionally, along with the state of the traffic, IoT drivers can receive updated information on the state of the roads, i.e., potholes, ice, grade changes, black spots, etc.

**DISADVANTAGES:**

➢ Security and privacy. Keeping the data gathered and transmitted by IoT devices safe is

challenging, as they evolve and expand in use....

➢ Technical complexity....

➢ Connectivity and power dependence....

➢ Integration....

➢ Higher costs (time and money)

## CONCLUSION:

The world doesn’t change on its own but we humans can change the world to be safe, better, and harmless. Since the road isn’t said to be safe let’s make it safer with the technologies present and available to us. The Internet of Things is one of the technologies that can lead us to travel on enhanced safe roads. So let's come together to create a better world with no accidents and a smart road for the future generation.

## FUTURESCOPE:

IoT obtains the majority of its data with the help of connected cars. These in corporate a large number of sensors that establish communication with the cloud, other vehicles, and devices. Thanks to this it provides data and information of great utility for the improvement of road safety. The safe system approach to road safety emphasizes safety by design ensuring safe vehicles, road networks, and road users. Evolving towards the future, the road needs to boil with advanced sensors and antenna systems to have peace with the new era.

## APPENDIX:

Source Code:

```
importwiotp.sdk.device
import time
import random
importibmiotf.applicat
ionimport
ibmiotf.device import
requests, json
myConfig = {
#Configuration
"identity": {
"orgId": "3dpjnk",
"typeId": "Sign_Board",
"deviceId":"Board_1"},
```

```
#API Key
"auth": {
"token": "1234567890"
}
}
#Receiving callbacks from IBM IOT
platform
defmyCommandCallback(cmd):print("Mess
age received from IBM IoT Platform:
%s" % cmd.data['command'])
m=cmd.data['command']
client = wiotp.sdk.device.DeviceClient(config=myConfig,logHandlers=None)
client.connect()
#OpenWeatherMap Credentials
BASE_URL ="https://api.openweathermap.org/data/2.5/weather?"
CITY = "Chennai"
URL = BASE_URL + "q=" + CITY + "&units=metric"+"&appid=" +
"01df65417ab3968e3fc2a38c4aee27bb"
while True:
response =
requests.get(URL) if
response.status_code
==200:
data = response.json()
main = data['main']
temperature
=main['temp']
humidity =
main['humidity']pressure
= main['pressure'] report =
```

```
data['visibility']
#messge part
msg=random.randint(0,5
) if msg==1:
message="SLOW DOWN, SCHOOL IS NEAR"
elifmsg==2:
message="NEED HELP, POLICE STATION AHED"
elifmsg==3:
message="EMERGENCY, HOSPITAL NEARBY"
elifmsg==4:
 message="DINE IN, RESTAURENT AVAILABLE"
else:
message=""
#Speed Limit part
speed=random.randint(0,150
) if speed>=100:
speedMsg=" Limit Exceeded"
elif speed>=60 and
speed<100:
speedMsg="Moderate"
else:
speedMsg="Slow"
#Diversion part
sign=random.randint(0,5
) if sign==1:
signMsg="Right Diversion"
elifsign==3:
signMsg="Left Diversion"
elifsign==5:
signmsg="U Turn"
```

```
else:
signMsg=""
#Visibility
if temperature < 24:
visibility="Fog Ahead, Drive Slow"
elif temperature < 20:
visibility="Bad Weather"
else:
visibility="Clear Weather"
else:
print("Error in the HTTP request")
myData={'Temperature':temperature, 'Message':message, 'Sign':signMsg,
'Speed':speedMsg,'Visibility':visibility}
client.publishEvent(eventId="status", msgFormat="json", data=myData, qos=0,
onPublish=None)
#PUBLISHING TO IOT WATSON
print("Published data Successfully: %s",
myData)client.commandCallback =
myCommandCallbacktime.sleep(5)
client.disconnect()
```

## GitHub Link:

https://github.com/IBM-EPBL/IBM-Project-37008-1660299511