PROJECT REPORT

TEAM ID	PNT2022TMID38782
PROJECT TITLE	Real-Time River Water Quality Monitoring and Control System
TEAM LEADER	Arulkumaran R
TEAM MEMBER 1	Ezhilarasan S
TEAM MEMBER 2	Harish K
TEAM MEMBER 3	Guhan I

1. INTRODUCTION:

PROJECT OVERVIEW:

This is system that is used to measure the river water quality in a real time. To measure the temperature and PH value of running water. Monitoring it in a regular based and give a notification to the user/logal people.

1. collect the data from the environment.

2. Build the Web application with the Node-RED and Give a Notification to the user when the water is not a good condition for a drinking purpose.

PURPOSE:

This Real-Time River Water Quality Monitoring and Control System is used to monitored the water quality. Because, the river water is characteristics are changed due to climate change, Chemical Waste Dumping , Radioactive Waste Discharge and etc. These activities change the water characteristics , so, this system very useful to the people.

2. LITERATURE SURVEY:

2.1 EXISTING PROBLEM:

The biggest challenges is the river water is the running water. People doesn’t know the water chemical characteristics. So, people use the unqualified water it cases the health issues to the people.

2.2 REFERENCES:

2020 3rd International Conference on Electron Device and Mechanical Engineering(ICEDME). Water quality monitoring system based on Internet of Things.

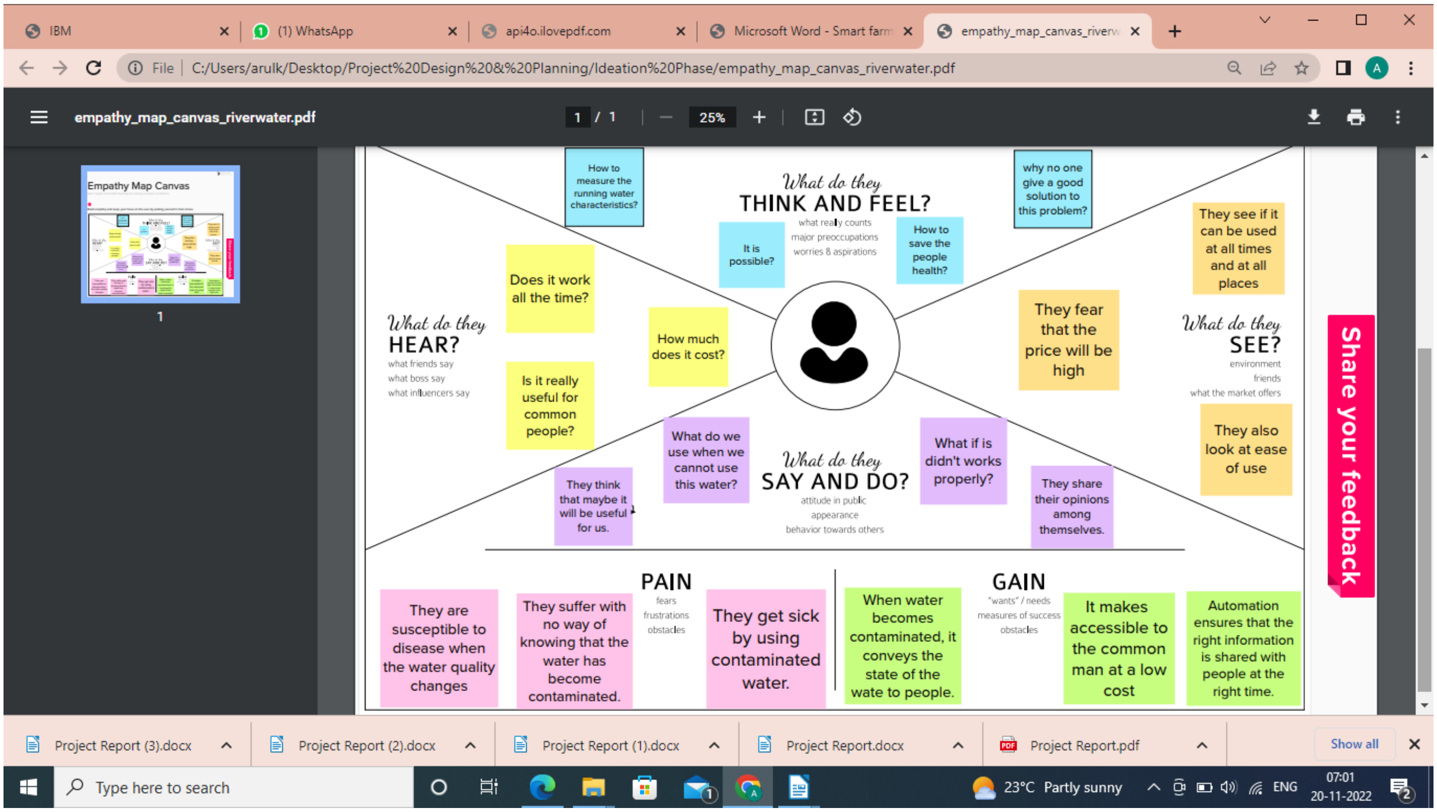
URL: http://www.computer.org/csdl/proceedings-article/icedme/2020/09122182/1kRSCMkwUTe

2.3 PROBLEM STATEMENT DEFINITION:

Some of the people using the river water to drinking. But these are do not know the water condition. During the climate change the water condition is changed at a time people drinking the river water it causes the some health issues. Chemical Waste Dumping, Radioactive Waste Discharge these are decrease the water quality and affect living organism in the river water.

3. IDEATION & PROPOSED SOLUTION:

3.1 EMPATHY MAP CANVAS:



What do they THINK AND FEEL?
what really counts
major preoccupations
worries & aspirations

How to measure the running water characteristics?

It is possible?

How to save the people health?

why no one give a good solution to this problem?

What do they HEAR?
what friends say
what boss say
what influencers say

Does it work all the time?

How much does it cost?

Is it really useful for common people?

What do they SEE?
environment
friends
what the market offers

They see if it can be used at all times and at all places

They fear that the price will be high

They also look at ease of use

What do they SAY AND DO?
attitude in public
appearance
behavior towards others

They think that maybe it will be useful for us.

What do we use when we cannot use this water?

What if is didn't works properly?

They share their opinions among themselves.

PAIN
fears
frustrations
obstacles

They are susceptible to disease when the water quality changes

They suffer with no way of knowing that the water has become contaminated.

They get sick by using contaminated water.

GAIN
"wants" / needs
measures of success
obstacles

When water becomes contaminated, it conveys the state of the wate to people.

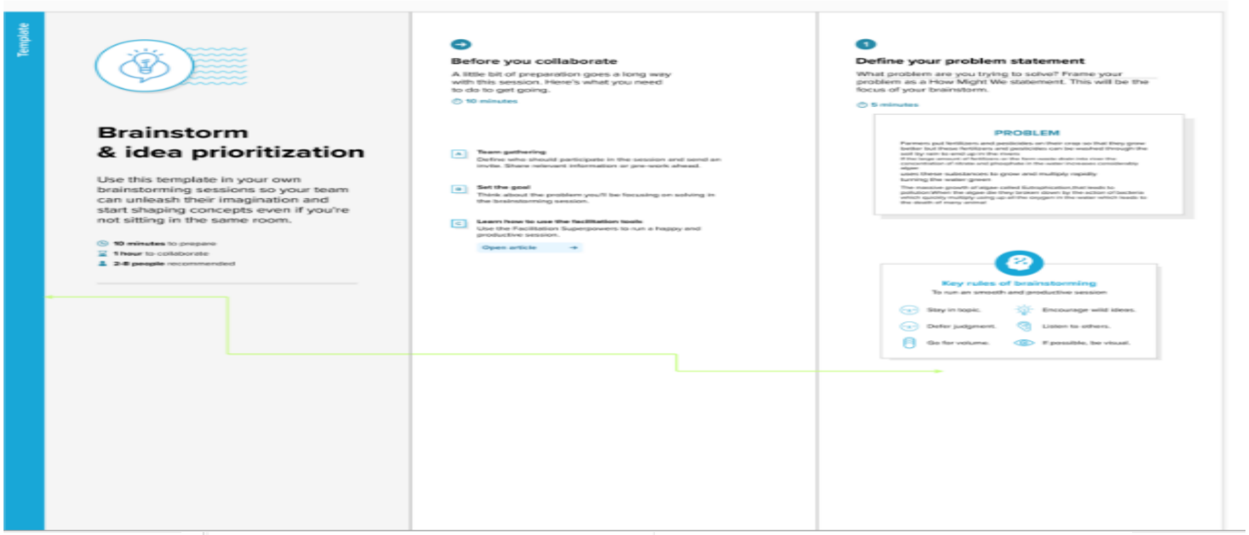
It makes accessible to the common man at a low cost

Automation ensures that the right information is shared with people at the right time.

3.2 IDEATION & BRAINSTORMING:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- **10 minutes** to prepare
- **1 hour** to collaborate
- **2-8 people** recommended

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

10 minutes

- **Team gathering** Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- **Set the goal** Think about the problem you'll be focusing on solving in the brainstorming session.
- **Learn how to use the facilitation tools** Use the Facilitation Superpowers to run a happy and productive session.

Open article →

1 Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

5 minutes

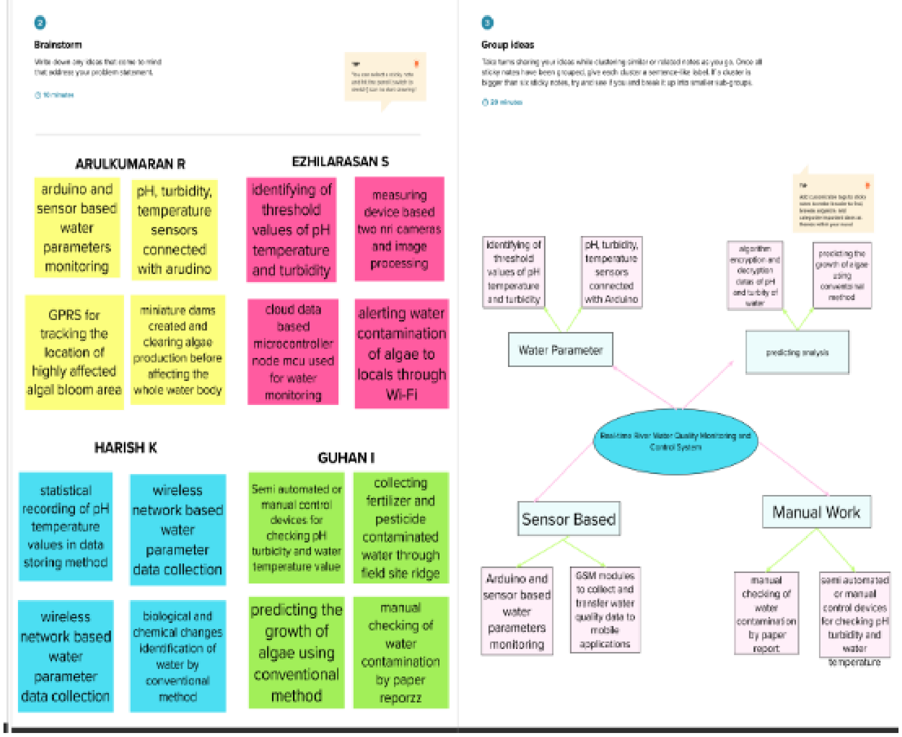
PROBLEM

Farmers put fertilizers and pesticides on their crop so that they grow better but these fertilizers and pesticides can be washed through the soil by rain to end up in the rivers. If the large amount of fertilizers or the farm waste drain into river the concentration of nitrate and phosphate in the water increases considerably. algae uses these substances to grow and multiply rapidly turning the water green. The massive growth of algae called Eutrophication,that leads to pollution.When the algae die they broken down by the action of bacteria which quickly multiply using up all the oxygen in the water which leads to the death of many animal

Key rules of brainstorming

To run an smooth and productive session

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.



2 Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

ARULKUMARAN R

- arduino and sensor based water parameters monitoring
- pH, turbidity, temperature sensors connected with arudino
- GPRS for tracking the location of highly affected algal bloom area
- miniature dams created and clearing algae production before affecting the whole water body

EZHILARASAN S

- identifying of threshold values of pH temperature and turbidity
- measuring device based two nri cameras and image processing
- cloud data based microcontroller node mcu used for water monitoring
- alerting water contamination of algae to locals through Wi-Fi

HARISH K

- statistical recording of pH temperature values in data storing method
- wireless network based water parameter data collection
- wireless network based water parameter data collection
- biological and chemical changes identification of water by conventional method

GUHAN I

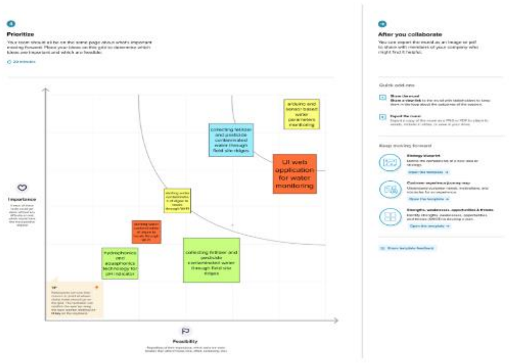
- Semi automated or manual control devices for checking pH turbidity and water temperature value
- collecting fertilizer and pesticide contaminated water through field site ridge
- predicting the growth of algae using conventional method
- manual checking of water contamination by paper reporzz

3 Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

Real-time River Water Quality Monitoring and Control System
Water Parameter
identifying of threshold values of pH temperature and turbidity
pH, turbidity, temperature sensors connected with Arduino
predicting analysis
algorithm encryption and decryption datas of pH and turbidity of water
predicting the growth of algae using conventional method
Sensor Based
Arduino and sensor based water parameters monitoring
GSM modules to collect and transfer water quality data to mobile applications
Manual Work
manual checking of water contamination by paper report
semi automated or manual control devices for checking pH turbidity and water temperature



4 Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

Importance
Feasibility
arduino and sensor based water parameters monitoring
collecting fertilizer and pesticide contaminated water through field site ridges
UI web application for water monitoring
alerting water contamination of algae to locals through Wi-Fi
hydrophonics and aquaphonics technology for pH indicator
collecting fertilizer and pesticide contaminated water through field site ridges

After you collaborate

You can export the mural as an image or pdf to share with members of your company who might find it helpful.

Quick add-ons

- **Share the mural**
- **Export the mural**

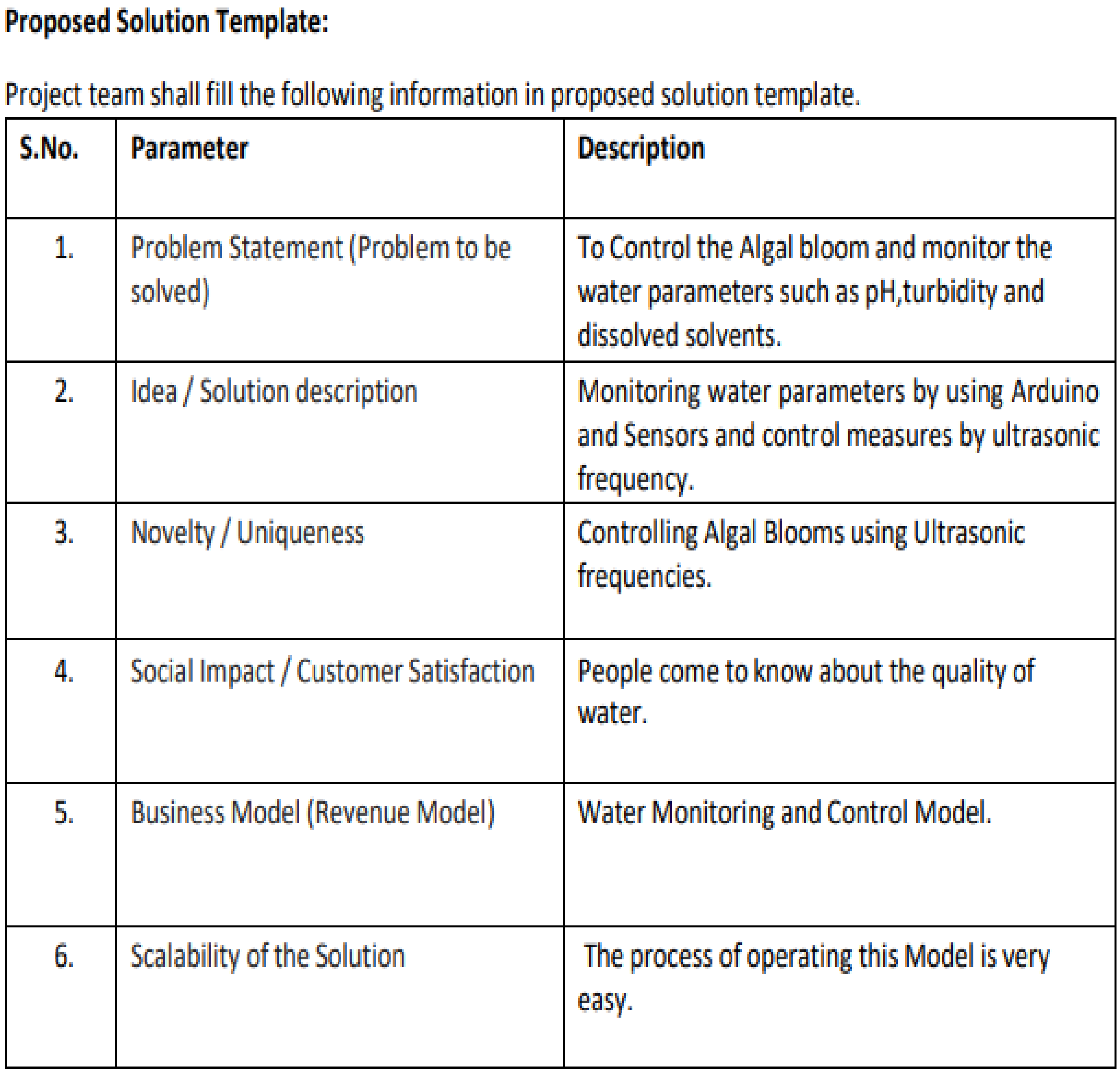
Keep moving forward

- **Strategy blueprint**
- **Customer experience journey map**
- **Strengths, weaknesses, opportunities & threats**

Share template feedback

3.3 Proposed Solution Template:

Project team shall fill the following information in proposed solution template.



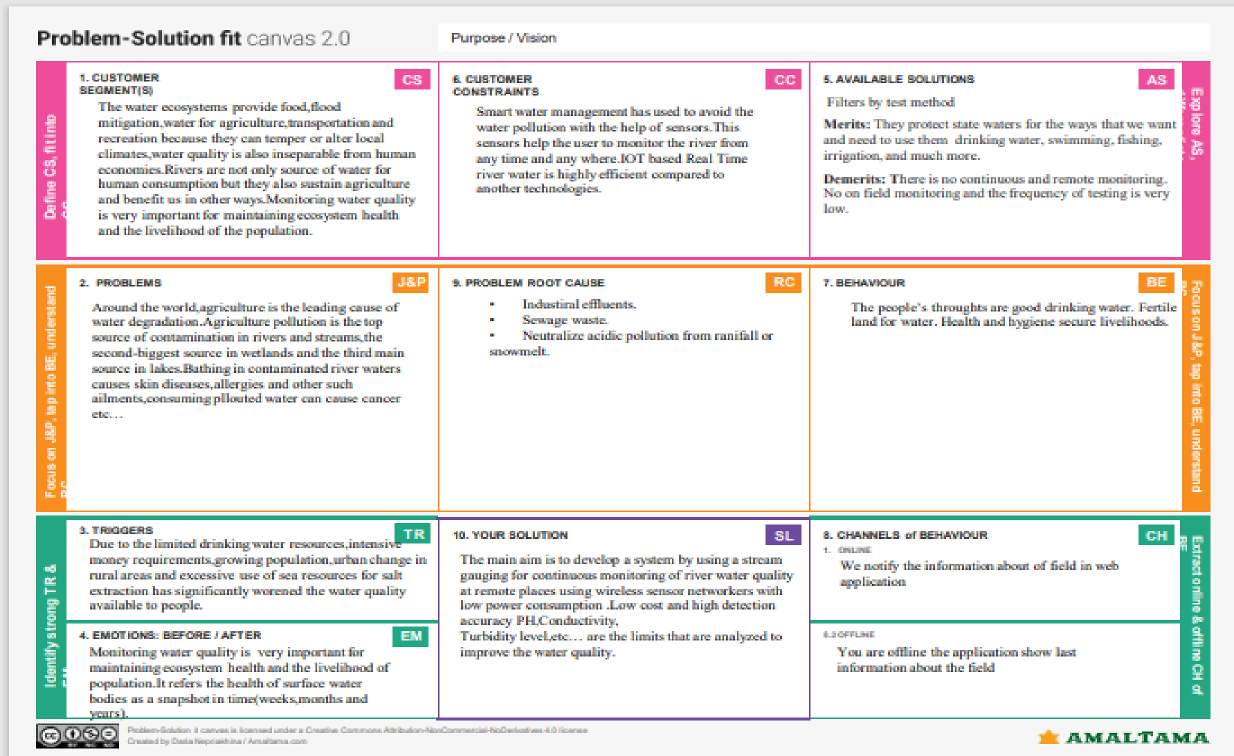
Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	**Parameter**	**Description**
1.	Problem Statement (Problem to be solved)	To Control the Algal bloom and monitor the water parameters such as pH,turbidity and dissolved solvents.
2.	Idea / Solution description	Monitoring water parameters by using Arduino and Sensors and control measures by ultrasonic frequency.
3.	Novelty / Uniqueness	Controlling Algal Blooms using Ultrasonic frequencies.
4.	Social Impact / Customer Satisfaction	People come to know about the quality of water.
5.	Business Model (Revenue Model)	Water Monitoring and Control Model.
6.	Scalability of the Solution	The process of operating this Model is very easy.

3

SOLUTIONS FIT:



Problem-Solution fit canvas 2.0

Purpose / Vision

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

The water ecosystems provide food,flood mitigation,water for agriculture,transportation and recreation because they can temper or alter local climates,water quality is also inseparable from human economies.Rivers are not only source of water for human consumption but they also sustain agriculture and benefit us in other ways.Monitoring water quality is very important for maintaining ecosystem health and the livelihood of the population.

6. CUSTOMER CONSTRAINTS CC

Smart water management has used to avoid the water pollution with the help of sensors.This sensors help the user to monitor the river from any time and any where.IOT based Real Time river water is highly efficient compared to another technologies.

5. AVAILABLE SOLUTIONS AS

Filters by test method

Merits: They protect state waters for the ways that we want and need to use them drinking water, swimming, fishing, irrigation, and much more.

Demerits: There is no continuous and remote monitoring. No on field monitoring and the frequency of testing is very low.

Explore AS, differentiate

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

2. PROBLEMS J&P

Around the world,agriculture is the leading cause of water degradation.Agriculture pollution is the top source of contamination in rivers and streams,the second-biggest source in wetlands and the third main source in lakes.Bathing in contaminated river waters causes skin diseases,allergies and other such ailments,consuming pllouted water can cause cancer etc…

9. PROBLEM ROOT CAUSE RC

- Industiral effluents.
- Sewage waste.
- Neutralize acidic pollution from ranifall or snowmelt.

7. BEHAVIOUR BE

The people's throughts are good drinking water. Fertile land for water. Health and hygiene secure livelihoods.

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

Identify strong TR & EM

3. TRIGGERS TR

Due to the limited drinking water resources,intensive money requirements,growing population,urban change in rural areas and excessive use of sea resources for salt extraction has significantly worened the water quality available to people.

4. EMOTIONS: BEFORE / AFTER EM

Monitoring water quality is very important for maintaining ecosystem health and the livelihood of population.It refers the health of surface water bodies as a snapshot in time(weeks,months and years).

10. YOUR SOLUTION SL

The main aim is to develop a system by using a stream gauging for continuous monitoring of river water quality at remote places using wireless sensor networkers with low power consumption .Low cost and high detection accuracy PH,Conductivity,

Turbidity level,etc… are the limits that are analyzed to improve the water quality.

8. CHANNELS of BEHAVIOUR CH

1. ONLINE

We notify the information about of field in web application

8.2 OFFLINE

You are offline the application show last information about the field

Extract online & offline CH of BE

AMALTAMA

4. REQUIREMENT ANALYSIS:

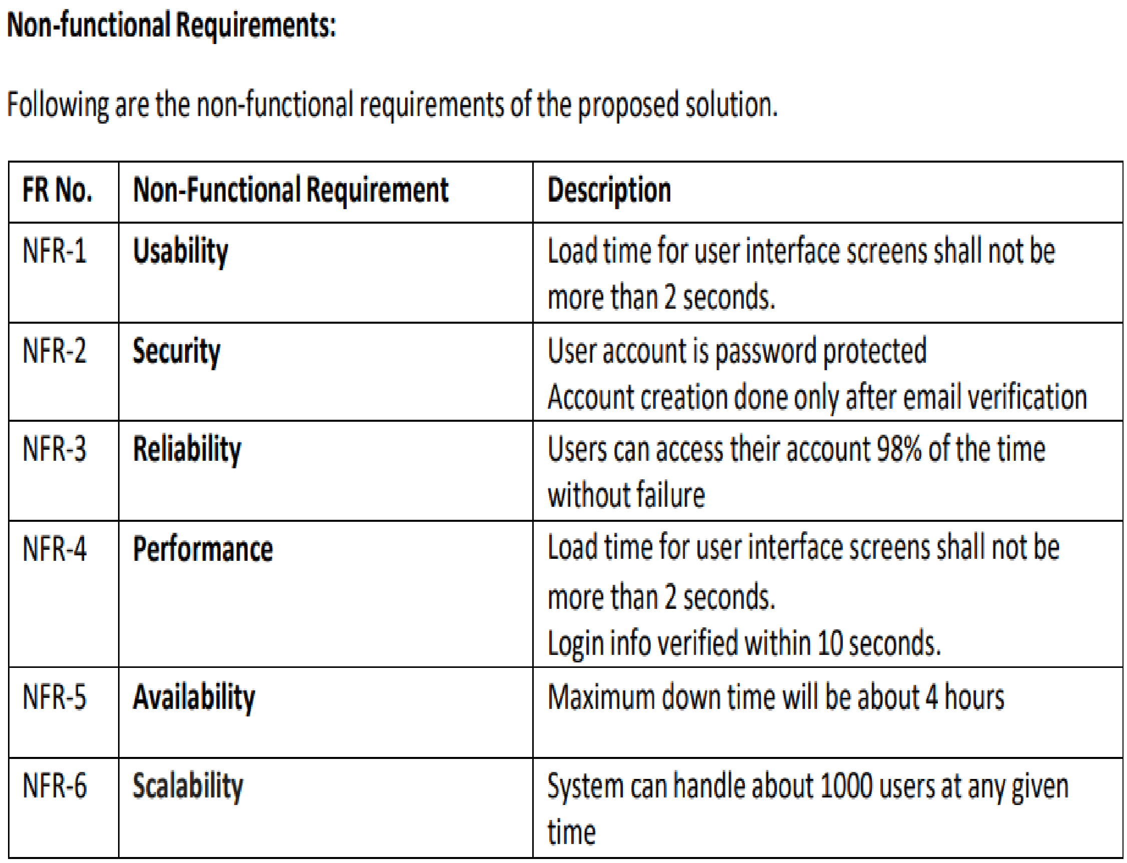
4.1 FUNCTIONAL ANALYSIS:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	IoT devices	Sensors and Wi-Fi module.
FR-2	Software	Web UI, Node-RED, IBM Watson, MIT app

4.2 NON FUNCTIONAL REQUIREMENTS:

Following are the non-functional requirements of the proposed solution.



Non-functional Requirements:

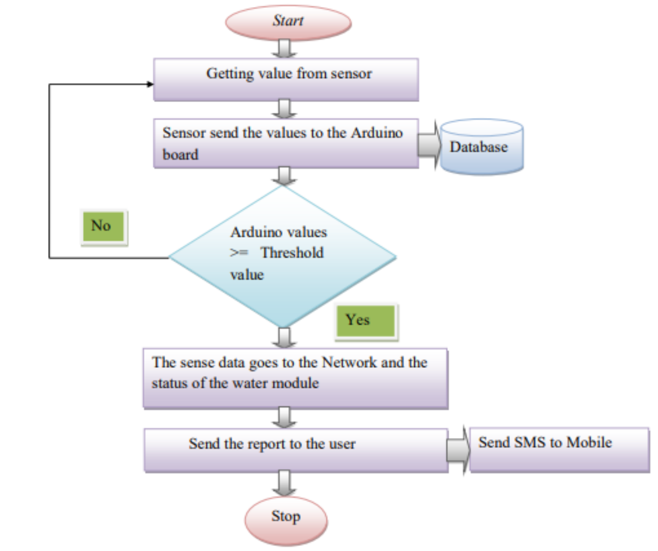
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Load time for user interface screens shall not be more than 2 seconds.
NFR-2	**Security**	User account is password protected Account creation done only after email verification
NFR-3	**Reliability**	Users can access their account 98% of the time without failure
NFR-4	**Performance**	Load time for user interface screens shall not be more than 2 seconds. Login info verified within 10 seconds.
NFR-5	**Availability**	Maximum down time will be about 4 hours
NFR-6	**Scalability**	System can handle about 1000 users at any given time

5. PROJECT DESIGN:

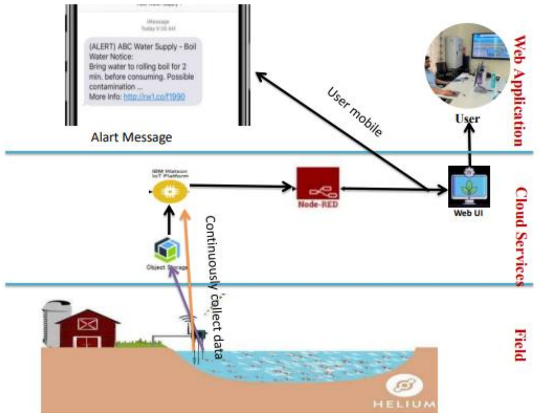
5.1 DATA FLOW DAIGRAMS AND USER STORIES:

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.


Start
Getting value from sensor
Sensor send the values to the Arduino board
Database
No
Arduino values >= Threshold value
Yes
The sense data goes to the Network and the status of the water module
Send the report to the user
Send SMS to Mobile
Stop

5.2 SOLUTIONS AND TECHNICAL ARCHITECTURAL:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2


(ALERT) ABC Water Supply - Boil Water Notice:
Bring water to rolling boil for 2 min. before consuming. Possible contamination ...
More Info: http://rw1.co/f1990
Alart Message
User mobile
User
Web Application
IBM Watson IoT Platform
Node-RED
Web UI
Cloud Services
Object Storage
Continuously collect data
Field
HELIUM

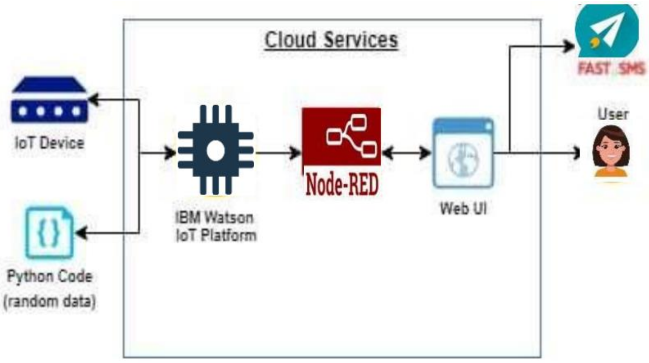


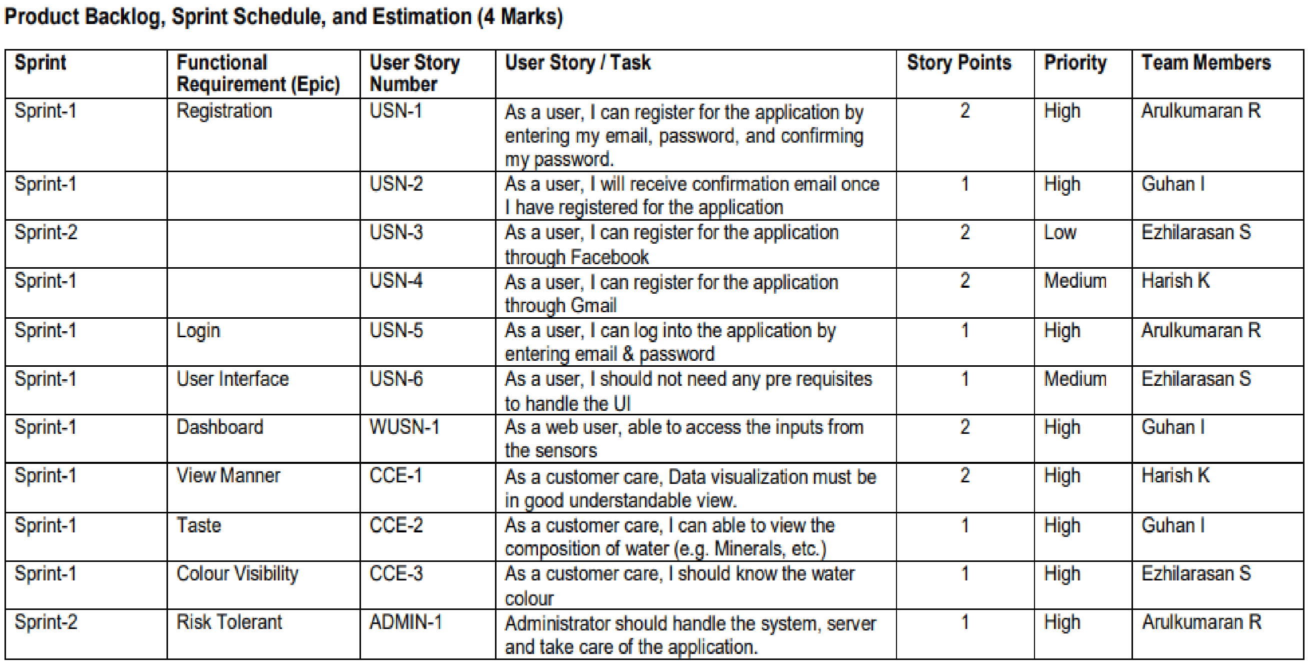
Table-1 : Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with application e.g. Web UI, Mobile App, Chat bot etc.	MIT app
2.	Application Logic-1	Logic for a process in the application	Node red/IBM Watson/MIT app
3.	Application Logic-2	Logic for a process in the application	Node red/IBM Watson/MIT app
4.	Application Logic-3	Logic for a process in the application	Node red/IBM Watson/MIT app
5.	Database	Data Type, Configurations etc.	MySQL, No SQL, etc.
6.	Cloud Database	Database Service on Cloud	IBM cloud.
7.	Temperature sensor	Monitors the temperature	
8.	Humidity sensor	Monitors the humidity	
10.	PH sensor	Monitors the PH range	.
11.	RTC module	Date and time configuration	

Table-2: Application Characteristics:

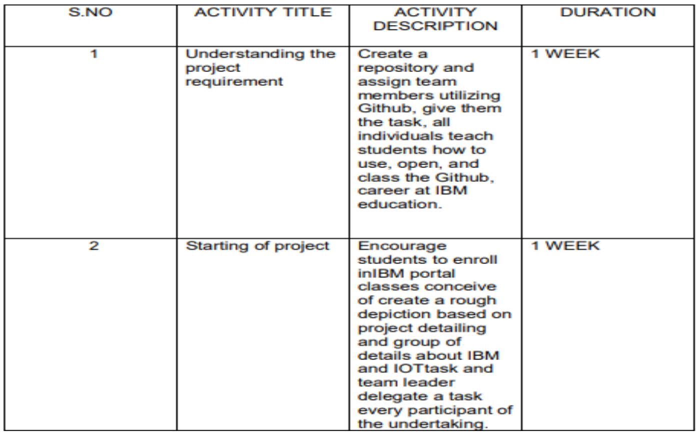
S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	MIT app,Node-Red	Software
2.	Scalable Architecture	Drone technology, pesticide monitoring ,Mineral identification in soil	Hardware

6. PROJECT PLANNING AND SCHEDULING:



Product Backlog, Sprint Schedule, and Estimation (4 Marks)

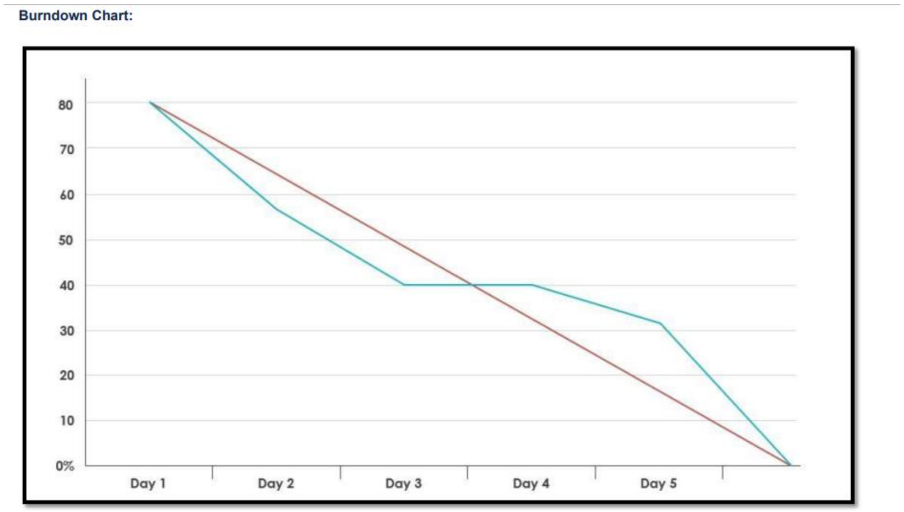
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Arulkumaran R
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Guhan I
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Ezhilarasan S
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	Harish K
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	1	High	Arulkumaran R
Sprint-1	User Interface	USN-6	As a user, I should not need any pre requisites to handle the UI	1	Medium	Ezhilarasan S
Sprint-1	Dashboard	WUSN-1	As a web user, able to access the inputs from the sensors	2	High	Guhan I
Sprint-1	View Manner	CCE-1	As a customer care, Data visualization must be in good understandable view.	2	High	Harish K
Sprint-1	Taste	CCE-2	As a customer care, I can able to view the composition of water (e.g. Minerals, etc.)	1	High	Guhan I
Sprint-1	Colour Visibility	CCE-3	As a customer care, I should know the water colour	1	High	Ezhilarasan S
Sprint-2	Risk Tolerant	ADMIN-1	Administrator should handle the system, server and take care of the application.	1	High	Arulkumaran R



S.NO	ACTIVITY TITLE	ACTIVITY DESCRIPTION	DURATION
1	Understanding the project requirement	Create a repository and assign team members utilizing Github, give them the task, all individuals teach students how to use, open, and class the Github, career at IBM education.	1 WEEK
2	Starting of project	Encourage students to enroll inIBM portal classes conceive of create a rough depiction based on project detailing and group of details about IBM and IOTtask and team leader delegate a task every participant of the undertaking.	1 WEEK

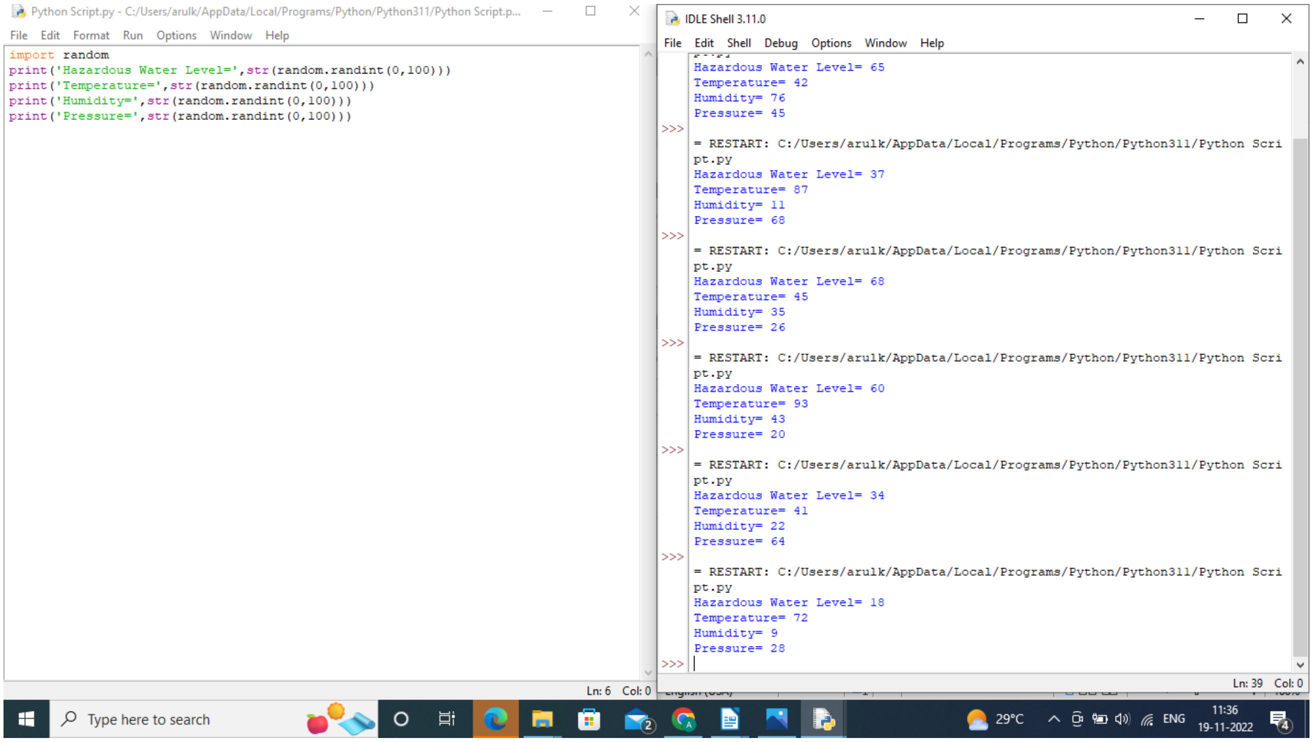
3	Attend class	Team members and the team captain must observe and discover from classes offered from IBM and NALAYATHIRAN and must advance entry to MIT permit for their project.	4 WEEK
4	Budget and scope of project	Analyze the project's budget and IOT use and speak of using a team for budget forecast to foresee the favorableness of the client to buy.	1 WEEK

Burndown Chart:



7.CODING & SOLUTIONS:

FEATURE:


Python Script.py - C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Script.p...
File Edit Format Run Options Window Help
Ln: 6 Col: 0
IDLE Shell 3.11.0
File Edit Shell Debug Options Window Help
Ln: 39 Col: 0
Type here to search
29°C
ENG
11:36
19-11-2022

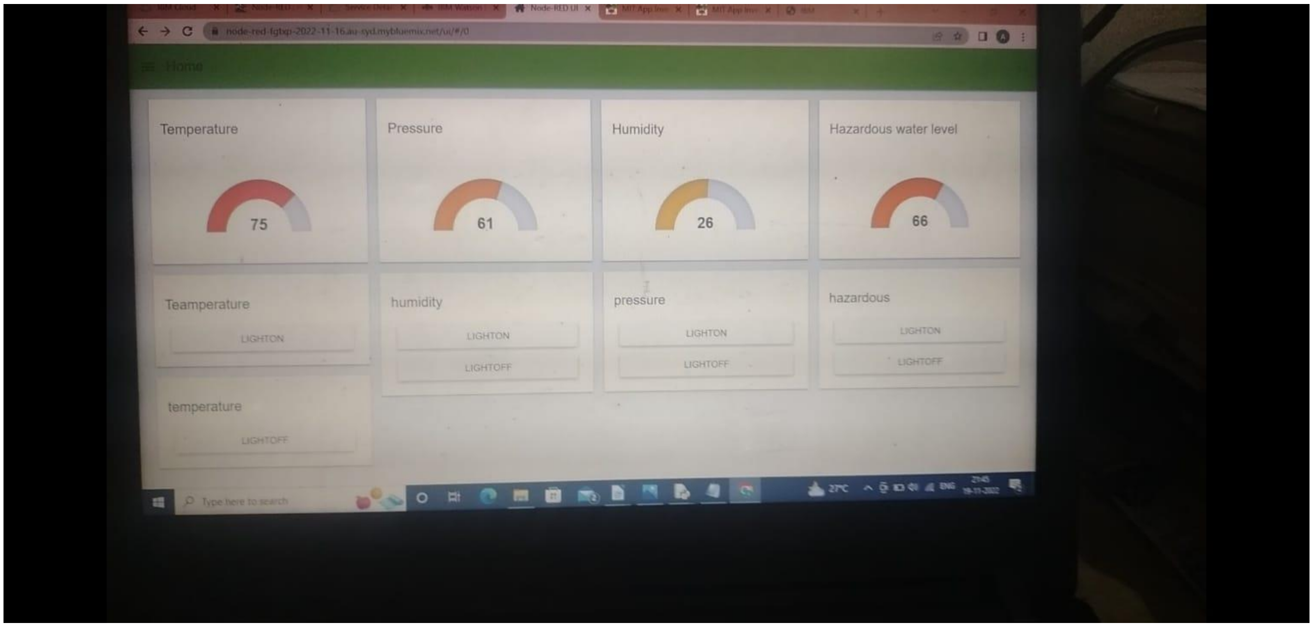
```python
import random
print('Hazardous Water Level=',str(random.randint(0,100)))
print('Temperature=',str(random.randint(0,100)))
print('Humidity=',str(random.randint(0,100)))
print('Pressure=',str(random.randint(0,100)))
```

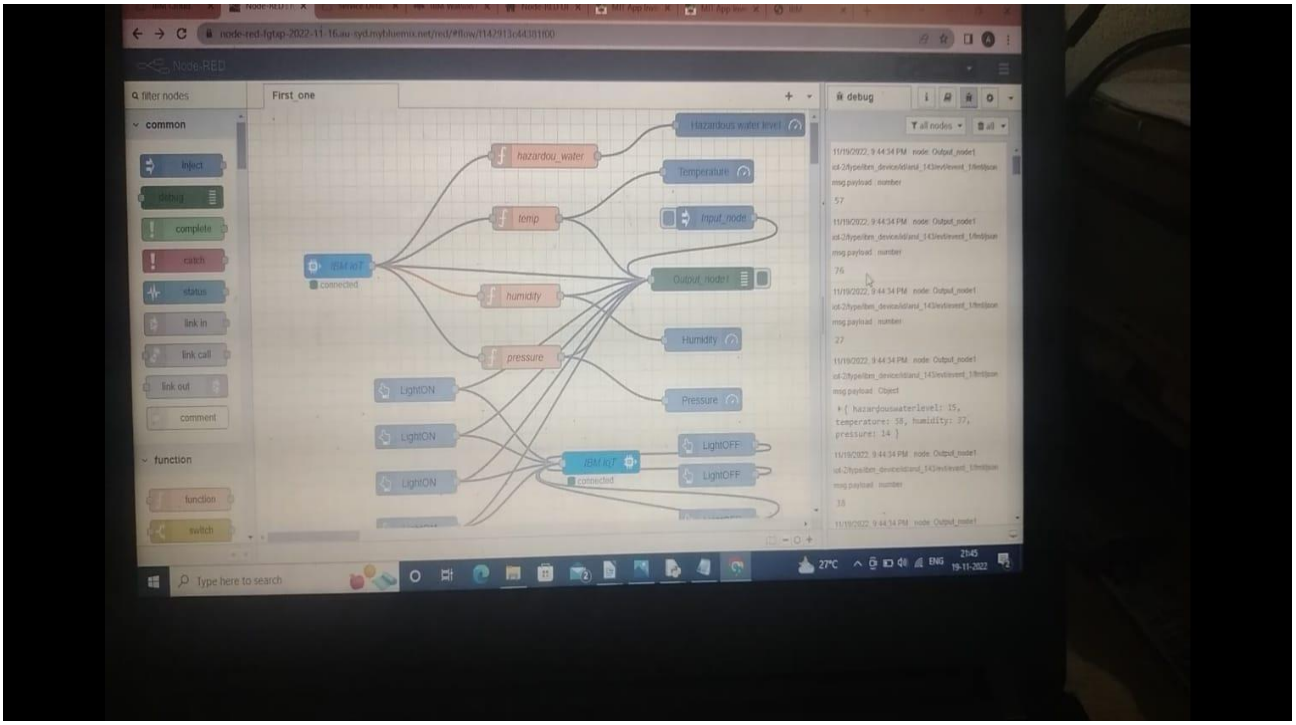
```
    Hazardous Water Level= 65
    Temperature= 42
    Humidity= 76
    Pressure= 45
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Scri
    pt.py
    Hazardous Water Level= 37
    Temperature= 87
    Humidity= 11
    Pressure= 68
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Scri
    pt.py
    Hazardous Water Level= 68
    Temperature= 45
    Humidity= 35
    Pressure= 26
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Scri
    pt.py
    Hazardous Water Level= 60
    Temperature= 93
    Humidity= 43
    Pressure= 20
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Scri
    pt.py
    Hazardous Water Level= 34
    Temperature= 41
    Humidity= 22
    Pressure= 64
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Scri
    pt.py
    Hazardous Water Level= 18
    Temperature= 72
    Humidity= 9
    Pressure= 28
>>>
```

8. TESTING:

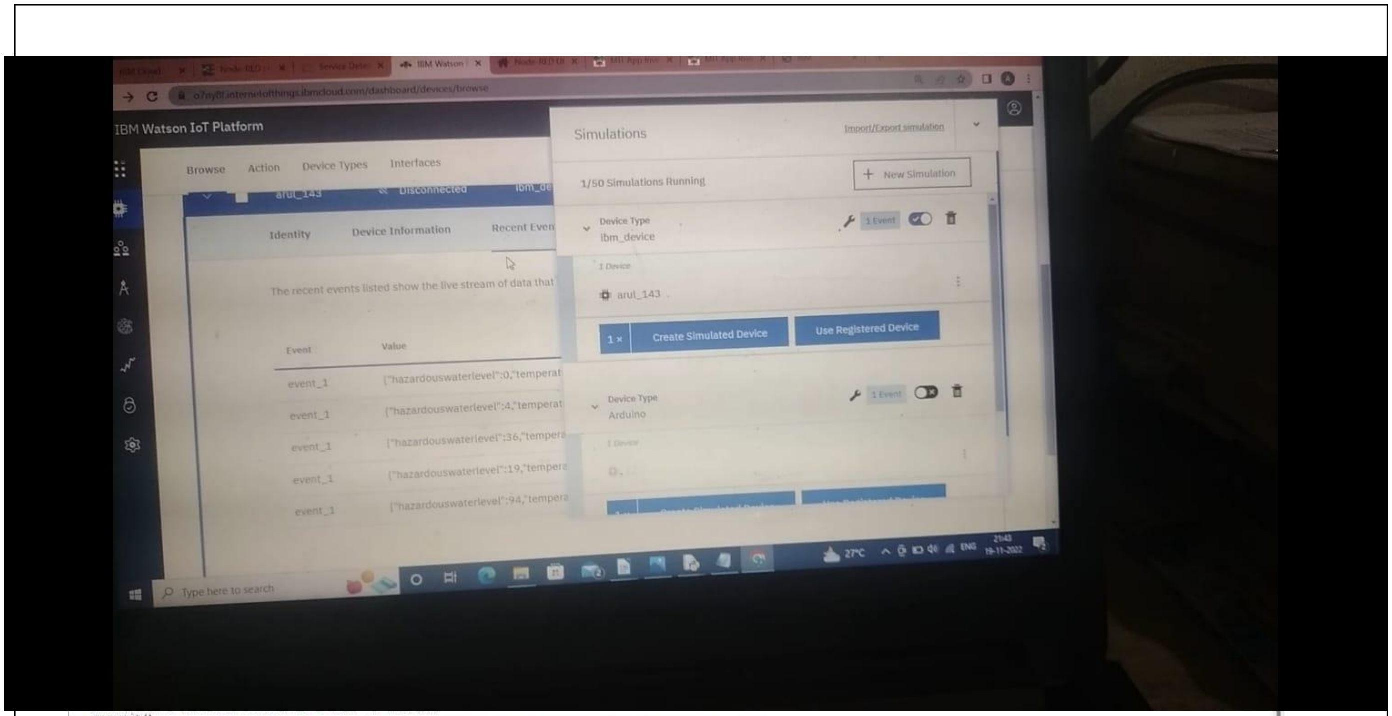
8.1 TEST CASE:

Web application using Node-RED.



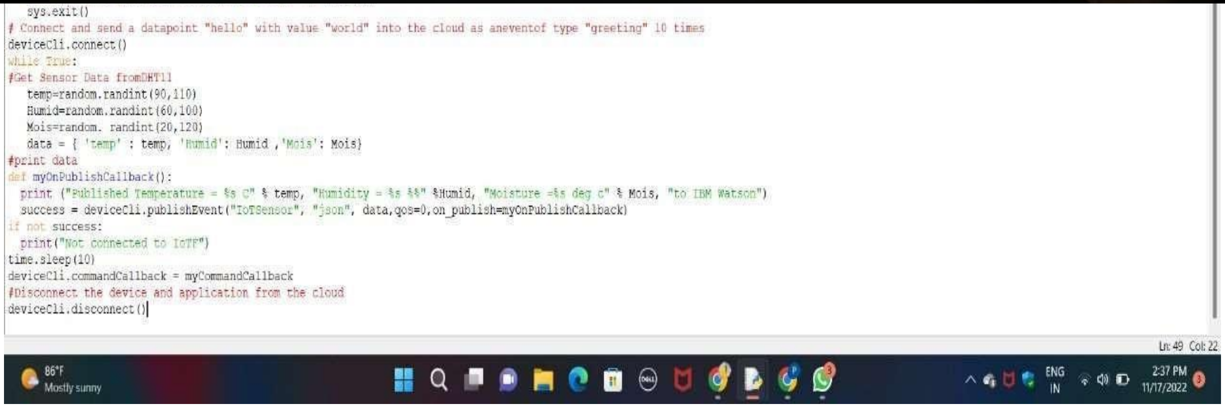


```
11/19/2022, 9:44:34 PM  node: Output_node1
iot-2/type/ibm_device/id/anil_143/evt/event_1/fmt/json
msg.payload : number
57
11/19/2022, 9:44:34 PM  node: Output_node1
iot-2/type/ibm_device/id/anil_143/evt/event_1/fmt/json
msg.payload : number
76
11/19/2022, 9:44:34 PM  node: Output_node1
iot-2/type/ibm_device/id/anil_143/evt/event_1/fmt/json
msg.payload : number
27
11/19/2022, 9:44:34 PM  node: Output_node1
iot-2/type/ibm_device/id/anil_143/evt/event_1/fmt/json
msg.payload : Object
 ▸{ hazardouswaterlevel: 15,
temperature: 58, humidity: 37,
pressure: 14 }
11/19/2022, 9:44:34 PM  node: Output_node1
iot-2/type/ibm_device/id/anil_143/evt/event_1/fmt/json
msg.payload : number
18
11/19/2022, 9:44:34 PM  node: Output_node1
```

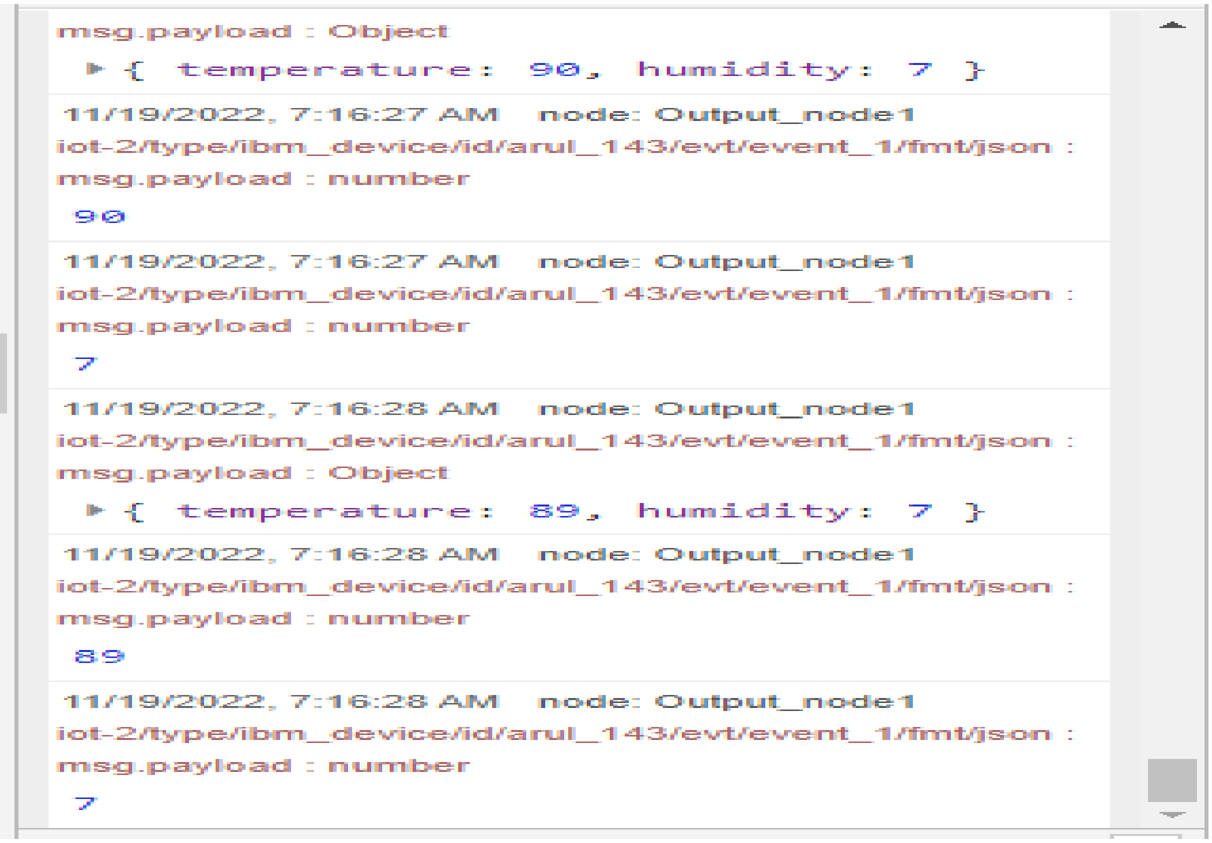


The recent events listed show the live stream of data that

Event	Value
event_1	{"hazardouswaterlevel":0,"temperat
event_1	{"hazardouswaterlevel":4,"temperat
event_1	{"hazardouswaterlevel":36,"tempera
event_1	{"hazardouswaterlevel":19,"tempera
event_1	{"hazardouswaterlevel":94,"tempera



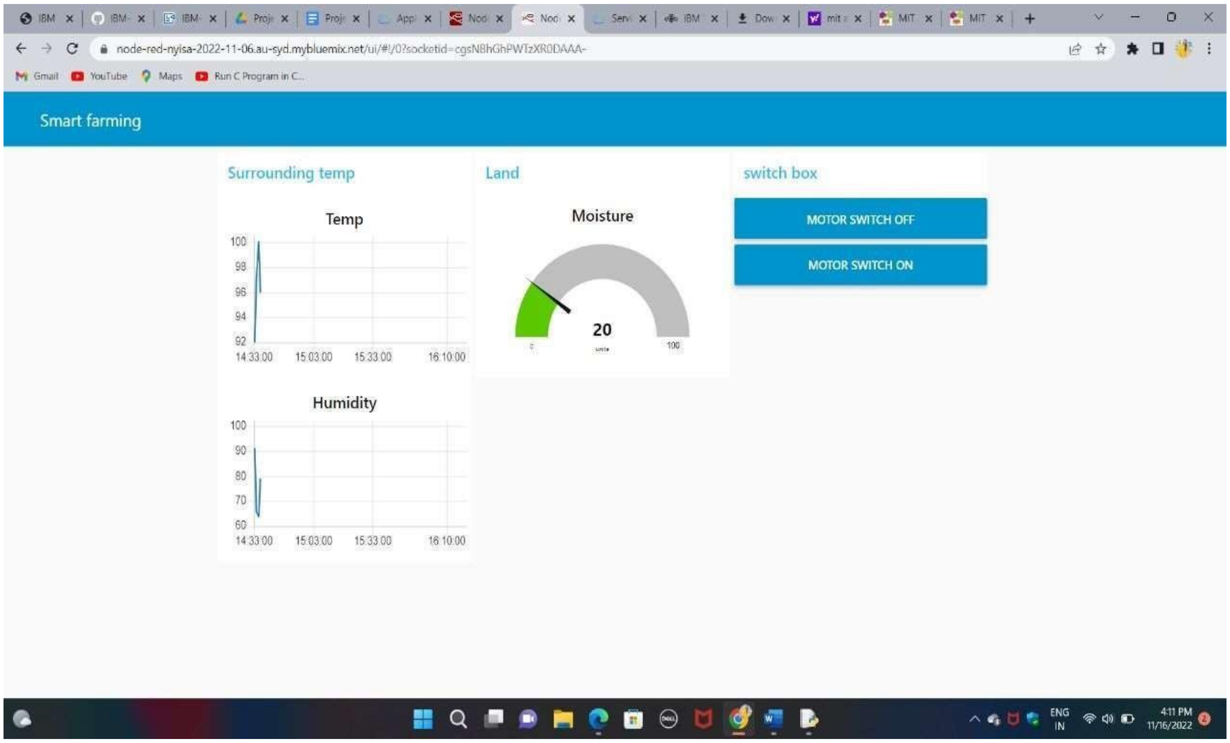
```
   sys.exit()
# Connect and send a datapoint "hello" with value "world" into the cloud as aneventof type "greeting" 10 times
deviceCli.connect()
while True:
#Get Sensor Data fromDHT11
   temp=random.randint(90,110)
   Humid=random.randint(60,100)
   Mois=random. randint(20,120)
   data = { 'temp' : temp, 'Humid': Humid ,'Mois': Mois}
#print data
def myOnPublishCallback():
  print ("Published Temperature = %s C" % temp, "Humidity = %s %%" %Humid, "Moisture =%s deg c" % Mois, "to IBM Watson")
  success = deviceCli.publishEvent("IoTSensor", "json", data,qos=0,on_publish=myOnPublishCallback)
if not success:
  print("Not connected to IoTF")
time.sleep(10)
deviceCli.commandCallback = myCommandCallback
#Disconnect the device and application from the cloud
deviceCli.disconnect()
```



```
msg.payload : Object
 ▶ { temperature: 90, humidity: 7 }
11/19/2022, 7:16:27 AM   node: Output_node1
iot-2/type/ibm_device/id/arul_143/evt/event_1/fmt/json :
msg.payload : number
 90
11/19/2022, 7:16:27 AM   node: Output_node1
iot-2/type/ibm_device/id/arul_143/evt/event_1/fmt/json :
msg.payload : number
 7
11/19/2022, 7:16:28 AM   node: Output_node1
iot-2/type/ibm_device/id/arul_143/evt/event_1/fmt/json :
msg.payload : Object
 ▶ { temperature: 89, humidity: 7 }
11/19/2022, 7:16:28 AM   node: Output_node1
iot-2/type/ibm_device/id/arul_143/evt/event_1/fmt/json :
msg.payload : number
 89
11/19/2022, 7:16:28 AM   node: Output_node1
iot-2/type/ibm_device/id/arul_143/evt/event_1/fmt/json :
msg.payload : number
 7
```

9. RESULT:

9.1 Performance Metrics



10. ADVANTAGES AND DISADVANTAGES:

10.1 ADVANTAGES:

- ❖ Monitor the temperature and PH values in a continues way
- ❖ Give a notification to the user anywhere
- ❖ Cost is very low

10.2 DISADVANTAGES:

- ❖ The characteristics of water it is changed one place to another place.
- ❖ So, approximation value only finded.

11. CONCLUSION:

An IoT based Real-Time River Water Quality Monitoring and Control System using Watson IoTplatform, Watson simulator, IBM cloud and Node-RED.

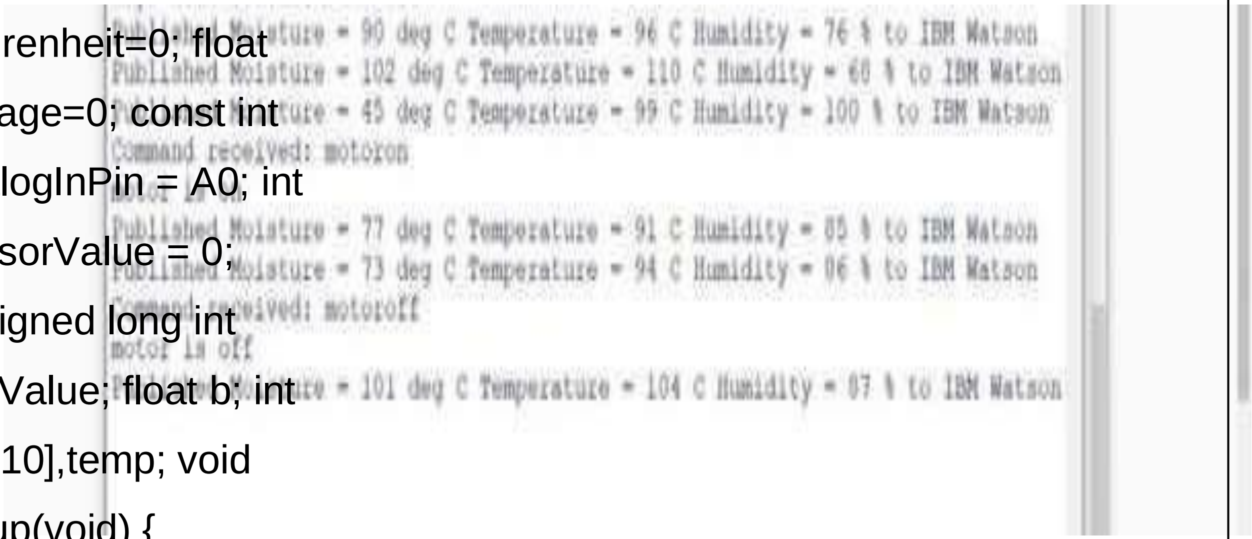
12. FUTURE SCOPE:

In future due to more useful for the People Health. Give a Notification user. Very useful to the people to drinking the water with know the water chemical properties.

13. APPENDIX:

SOURCE CODE:

```
#include #include
#define
ONE_WIRE_BUS 5
OneWire
oneWire(ONE_WIRE_
BUS);
DallasTemperature
sensors(&oneWire);
float Celcius=0; float
Fahrenheit=0; float
voltage=0; const int
analogInPin = A0; int
sensorValue = 0;
unsigned long int
avgValue; float b; int
buf[10],temp; void
setup(void) {
Serial.begin(9600);
sensors.begin(); int
sensorValue =
analogRead(A1);
voltage = sensorValue
```

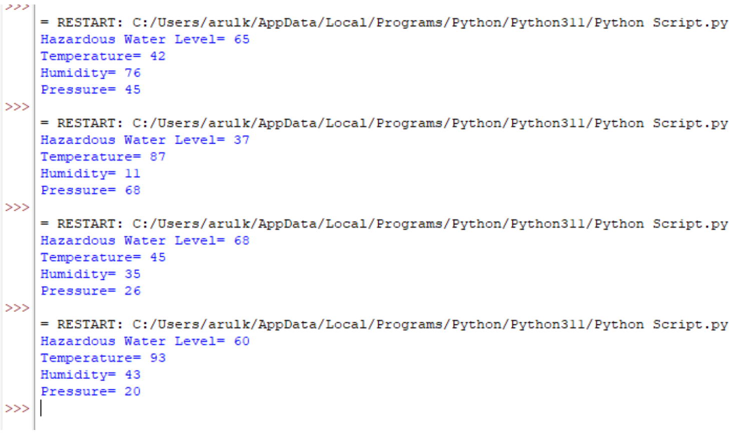


```
Published Moisture = 90 deg C Temperature = 96 C Humidity = 76 % to IBM Watson
Published Moisture = 102 deg C Temperature = 110 C Humidity = 60 % to IBM Watson
Published Moisture = 45 deg C Temperature = 99 C Humidity = 100 % to IBM Watson
Command received: motoron
motor is on
Published Moisture = 77 deg C Temperature = 91 C Humidity = 85 % to IBM Watson
Published Moisture = 73 deg C Temperature = 94 C Humidity = 06 % to IBM Watson
Command received: motoroff
motor is off
Published Moisture = 101 deg C Temperature = 104 C Humidity = 87 % to IBM Watson
```

```
* (5.0 / 1024.0); } void
loop(void) {
sensors.requestTempe
ratures();
Celcius=sensors.getTe
mpCByIndex(0);
Fahrenheit=sensors.to
Fahrenheit(Celcius);
for(int i=0;i<10;i++) {
buf[i]=analogRead(anal
ogInPin); delay(10); }
for(int i=0;i<9;i++) {
for(int j=i+1;j<10;j++) {
if(buf[i]>buf[j]) {
temp=buf[i];
buf[i]=buf[j];
buf[j]=temp; } } } for(int
i=2;i<8;i++)
avgValue+=buf[i]; float
pHVol=(float)avgValue
*5.0/1024/6; float
phValue = -5.70 *
pHVol + 21.34;
Serial.println(phValue);
Serial.print("pH");
Serial.print(" C ");
Serial.print(Celcius);
Serial.print(voltage);
Serial.print("V");
```

```
 delay(10000);
 }
```

OUTPUT:



```
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Script.py
    Hazardous Water Level= 65
    Temperature= 42
    Humidity= 76
    Pressure= 45
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Script.py
    Hazardous Water Level= 37
    Temperature= 87
    Humidity= 11
    Pressure= 68
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Script.py
    Hazardous Water Level= 68
    Temperature= 45
    Humidity= 35
    Pressure= 26
>>>
    = RESTART: C:/Users/arulk/AppData/Local/Programs/Python/Python311/Python Script.py
    Hazardous Water Level= 60
    Temperature= 93
    Humidity= 43
    Pressure= 20
>>>
```

Demo Link: https://youtu.bemQsHfv98MDM

GitHub Link: https://github.com/IBM-EPBL/IBM-Project-6766-1658836325

THANK YOU…..