Project Report Format

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1.INTRODUCTION:

1.1 Project Overview :

Now a day's people are suffering from skin diseases, more than 125 million people suffering from Psoriasis also skin cancer rate is rapidly increasing over the last few decades especially Melanoma is most diversifying skin cancer. If skin diseases are not treated at an earlier stage, then it may lead to complications in the body including spreading of the infection from one individual to the other. To overcome the above problem, we are building a model which is used for the prevention and early detection of skin cancer, psoriasis. Basically, skin disease diagnosis depends on the different characteristics like colour, shape, texture etc. Here the person can capture the images of skin and then the image will be sent the trained model. The model analyses the image and detect whether the person is having skin disease or not.

1.2 Purpose :

The diseases are not considered skin diseases, and skin tone is majorly suffered from the ultraviolet rays from the sun. However, dermatologists perform the majority of non-invasive screening tests simply with the naked eye, even though skin illness is a frequent disease for which early detection and classification are essential for patient success and recovery. The characteristic of the skin images is diversified so that it is a challenging job to devise an efficient and robust algorithm for automatic detection of skin disease and its severity. Automatic processing of such images for skin analysis requires quantitative discriminator to differentiate the diseases.

2.LITERATURE SURVEY:

2.1 Existing problem:

Waste management has become an alarming challenge in local towns and cities across the world. Often the local area bins are overflowing and the municipalities are not aware of it. This affects the residents of that particular area in numerous ways starting from bad odour to unhygienic and unsafe surroundings. Poor waste management - ranging from non-existing collection systems to ineffective disposal -causes air pollution, water and soil contamination. Open and unsanitary areas contribute to contamination of drinking water and can cause infection and transmit diseases. Toxic components such as Persistent Organic Pollutants (POPs) pose particularly significant risks to human health and the environment as they accumulate through the food chain. Animals eating contaminated plants have higher doses of contaminants than if they were directly exposed. Precipitation or surface water seeping through waste will absorb hazardous components from landfills, agricultural areas, feedlots, etc. and carry them into surface and groundwater. Contaminated groundwater also poses a great health risk, as it is often used for drinking, bathing and recreation, as well as in agricultural and industrial activities. Landfills and waste transfer

stations can attract various pests (insects, rodents, gulls, etc.) that look for food from waste. These pests can spread diseases through viruses and bacteria (i.e., salmonella and ecoli), which are a risk to human health.

2.2 References:

Paper -1

Author Name: Mohammad Aazam
Year Of Publishing: 2016
Description:

Mohammad Aazam provides the idea of sensors-based waste bins, capable of notifying waste level status. An automatic waste bin and make use of cloud computing paradigm to evolve a more robust and effective smart waste management mechanism. Waste management is linked to different stakeholders, including recyclers, importers and exporters, food industry, healthcare, research, environment protection and related organizations, and tourism industry Mohammad Aazam et al proposed Cloud SWAM, in which each bin is equipped with sensors to notify its waste level. Different bins for each category of waste, namely: organic, plastic/paper/bottle, and metal. In this way, each type of waste is already separated and through the status, it is known that how much of waste is collected and of what type. The availability of data stored in the cloud can be useful for different entities and stakeholders in different ways. Analysis and planning can start from as soon as waste starts gathering and up to when recycling and import/export related matters are conducted. The system Cloud SWAM provides Timely waste collection. Timely and efficient way of collecting waste leads to better health, hygiene, and disposal.

Paper-2

Author Name: R. Jenifer Prarthana ,Dr.N.Sathish Kumar
Year Of Passing: 2016
Description:

R. Jenifer Prarthana uses tremendous power of RFID technology and presents the development of an electronic monitoring (e-monitoring) system to overcome the problems in the conventional approach. The e-monitoring system is an embedded system that comprises of RFID technology interfaced with Arduino micro-controller and a web base which is completely computerized. Dr. N. Sathish Kumar et al. designed a smart dustbin in which the dust bin gets blocked when it reaches a threshold value. The ultrasonic sensor measures the waste volume .Microcontroller reads the data from sensor and alerts the server.For the verification process RFID tag (ID card of the cleaner) interrupts the RFID reader, the ultrasonic sensor checks the status of the dustbin and sends it to the web server. An android application is used to view the alerts and status at the server end. RFID technologies do not need line of sight and the RFID waste tag can be read without actually seeing it.

Paper-3

Author Name: Belal Chowdhury ,Morshed U. Chowdhury
Year Of Publishing: 2007
Description:

An RFID-based waste management system proposed by Belal Chowdhury and Morshed U. Chowdhury mainly consists of a smart waste (RFID) tag, a Reader and a waste management IT system (i.e., WMITS). A load cell is used to record the weight of bulk waste from each waste bin. A reader device attached to them PDA (Personal Digital Assistant) or a smart phone placed in waste collector vehicle (garbage/recycling truck) enables the chip to transmit its unique identification to the reader device, allowing the bin to be remotely identified. A RFID reader on each waste collector vehicle will ensure that the weight and identity of the waste is passed to the PDA and automatically logged into an integrated database server. The RFID reader can also request any additional information from the waste tag that is encoded on it. When robotic/lifting arms in the waste collector loaded onto the vehicle then the weighting measures the weight of each bin. The bin ID is then used to calculate actual waste disposal charges for each individual household. Belal Chowdhury and Morshed U. Chowdhury designed a five layer architecture for RFID and sensor based waste management system. The layers are named as physical layer, middleware layer, process layer, data access layer and user interface layer. The physical layer consists of the actual RFID hardware components and it include RFID waste tag, reader and antennas. Middleware layer is act as the interface between the RFID reader, load cell sensor and waste management service providers (i.e., waste collectors, and municipalities) IT system. The important element of RFID and load cell sensor systems is middleware layer , which is viewed as the central nervous system from the waste management system perspective. This layer enables waste management service provider's (e.g., waste collector) a quick connectivity with RFID readers and load cell sensors and also the layer lowers the volume of information that waste management system applications need to process, by grouping and filtering raw RFID and load cell data from readers and sensors respectively. An application-level interface is provided by middleware layer for managing RFID readers, and load cell sensors for processing large volumes of waste data for their applications. The middleware layer is responsible for monitoring physical layer components.

Paper-4

Author Name: Fachmin F olianto, Yong Sheng Low and Wai Leong Yeow
Year Of Publishing: 2015
Description:

Fachmin F olianto, Yong Sheng Low and Wai Leong Yeow proposed Smart bin system has 3 –tier architecture. The ultra sound sensor installed in every Smart bin senses bin fullness and report readings and sensor statuses. The sensor reading is transmitted

to the gateway nod which is installed in every sensor cluster. It forwards the information to the backend server. The analytics module in the back end server analyzes data collected by the bin sub system. The analytics module processes fullness readings, compares against predefined rules, and generates event upon exceeding threshold. The bin sub-system sends information to the workstation and it shows meaningful information to users through a graphical user interface.

Paper-5

Author Name: Keerthana betal
Year Of Publishing: 2017
Description:

Keerthana b et al designed internet of bins for trash management in India. The smart TRASH management system using sensor, microcontroller and other modules ensures emptying of dustbins appropriately when the garbage level reaches its maximum. Two threshold limits are set for the bins and an alert message is sent to the van that collects the trash if the waste amount reaches these thresholds. The system further allows the people to drop down the trash bags into the bins till it reaches the threshold limit .It waits for the acknowledgment from the van to clear off the bin and if the acknowledgment is not received it is sent again when it reaches threshold limit and the bin gets locked. When bin gets locked it displays the message "Overloaded". Then the dustbin will be monitored for a specific time and when not cleared within certain time limit, then a message will be sent to the higher authority who can take appropriate action

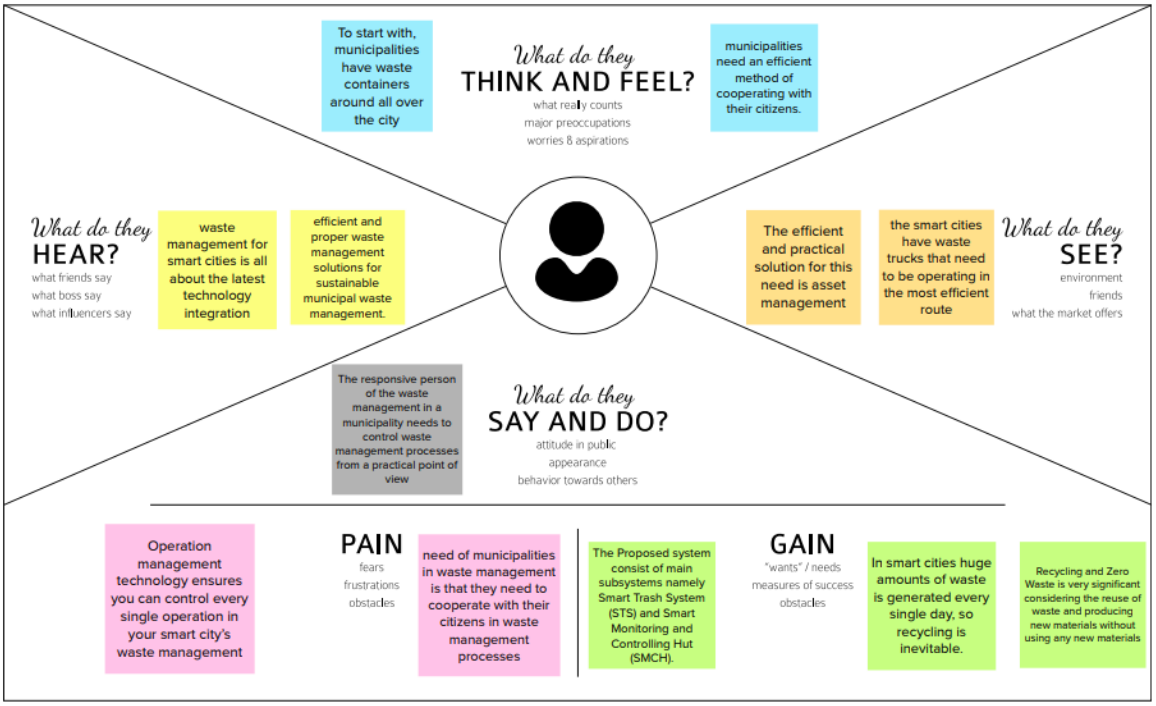
.

2.3.Problem Statement Definition:

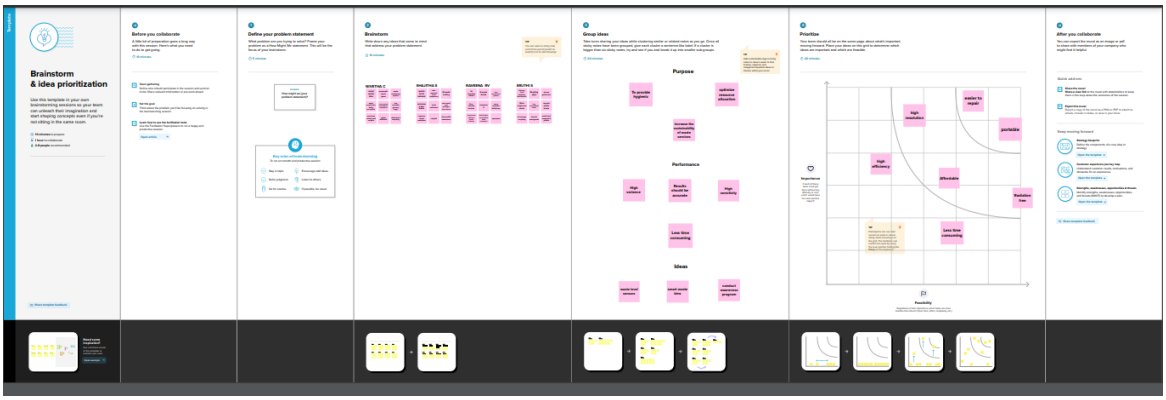
Problem Statement	**I am (customer)**	**I'm trying to**	**But**	**Because**	**Which make me feel**
PS-1	Municipal Corporation Authority	Get notified when the trash can are full and made awareof where thefull cans are located	Don't have the facilities at the moment	There is no tool available to determine the level of bins	Frustrated
PS-2	Individual working for a private limited copration	Get rid of the example of a surplus of waste	The trash cans are always filled	I occupy a metropolitan where there is invariably crowd	Worried

3.IDEATION & PROPOSED SOLUTION:

3.1 Empathy Map Canvas:



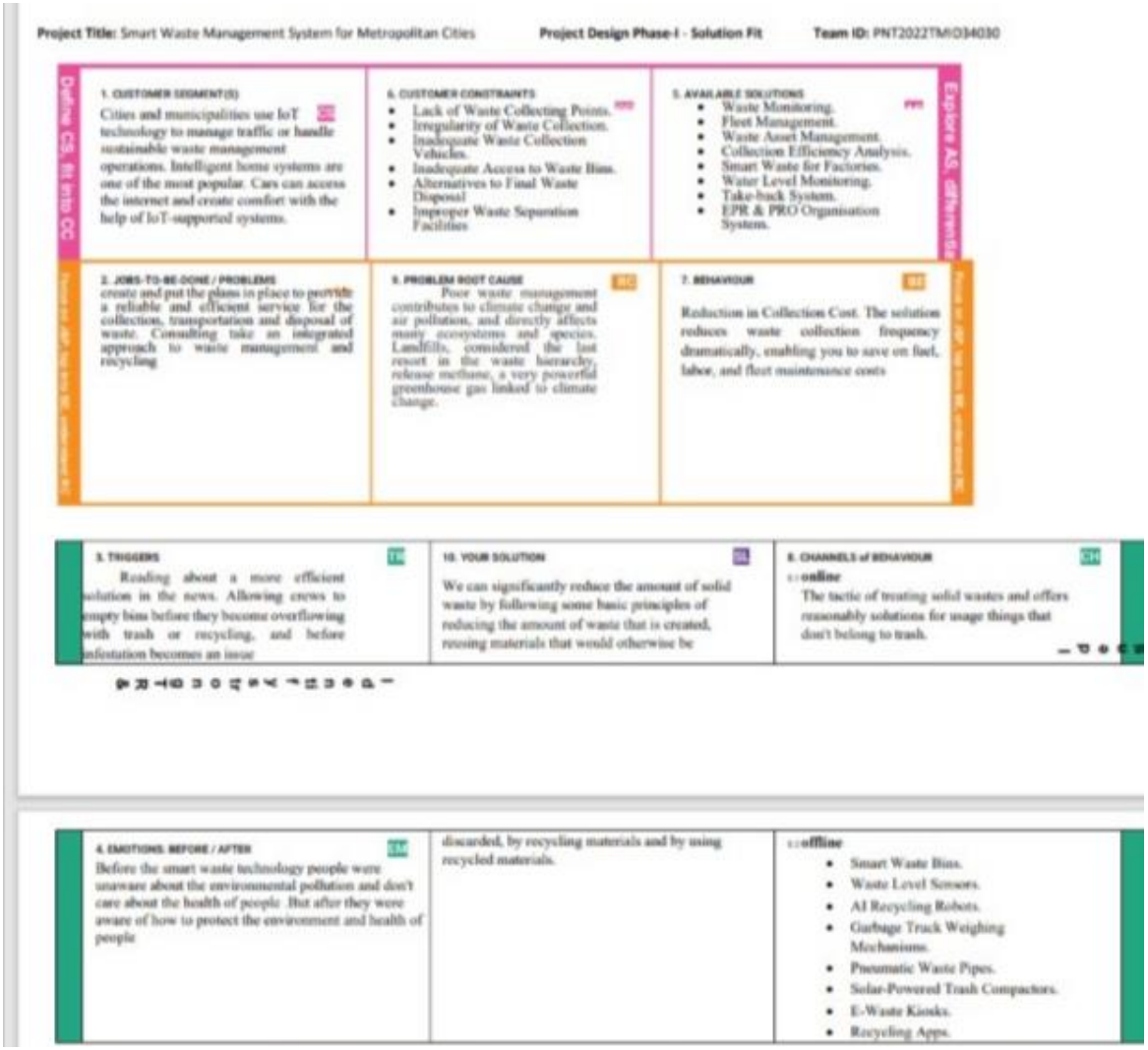
3.2 Ideation & Brainstorming:



3.3 Proposed Solution:

S.NO	Parameter	Description
1.	Problem Statement	Waste management suffers from a pervasive underpricing, which means that the costs of waste management are not fully appreciated by consumers and industry, and waste disposal is preferred over other options. Few waste treatment options are available to manage waste and so they are more expensive than landfill costs
2.	Idea	1. Use a reusable bottle/cup for beverages on-the-go. 2. Use reusable grocery bags, and not just for groceries. 3. Purchase wisely and recycle 4. Compost it! 5. Avoid single-use food and drink containers and utensils. 6. Buy secondhand items and donate used goods 7. Shop local farmers markets and buy in bulk to reduce packaging. 8. Curb your use paper: mail,receipts,magazines.
3.	Novelty	Bin -e is a smart waste bin that uses IoT technology to improve waste management. These smart bins use sensors, image -based trash recognition technology, and artificial intelligence, enabling them to automatically sort and categorize recycling litter into one of its smaller bins.
4.	Social Impact	Bin -e is an Iot -based smart waste bin, designed for public places, enabling them to simplify recycling. It sorts and compresses the waste automatically, controls the fill level and processes data for convenient waste management. let's sort out your waste problem Iot -based recognition Just throw the waste inside!
5.	Business Model	The Bin - e business model develops from the recycling industry working as per the rules and regulations of the country where it is established. In our country, such rules and regulations are coming from pollution control to pollution prevention, increasing the following of the Bin - e business model. It provides Smart Bin-e, an IoT device that provides solutions for recycling in eco-friendly workplace. The technology recognises, sorts and compresses the waste.
6.	Scalability of the Solution	To further enhance the capability of their application, we recommend these features Provides backup recovery of data Provide better user interface for user.

3.4 Solution Fit:



4.Requirement Analysis:

4.1 Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	**User Registration**	Registration through Gmail
FR-2	**User Confirmation**	Confirmation via Email Confirmation via OTP
FR-3	**GPS Access**	GPS access to know the location
FR-4	**Bin level Analysing**	Acquire the levels of Waste bins in a regular interval of time.

FR-5	**Transport Router**	To make a efficient route for the collection of garbages around a area.

4.2 Non Functional Requirements:

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	○ A smart solution has been proposed to make the waste sorting more simple and accurate , and improve the user experience, usability, and satisfaction. ○ It aims to optimize ease of use while offering maximum functionality.
NFR-2	**Security**	○ The information of the users will be highly secured,the accounts are verified with Gmail. ○ If the products are misplaced then the GPS driven sensor gives an alert.
NFR-3	**Reliability**	○ Operates in a defined environment without failure resulting in less manpower, emissions, fuel use and traffic congestion.
NFR-4	**Performance**	○ The system will provide accurate reports, thus increasing the efficiency of the system. ○ The real-time monitoring of the garbage level with the help of sensors and wireless communication will reduce the total number of trips required of Garbage collecting truck.
NFR-5	**Availability**	○ The smart waste bins are available in Convention centers, buildings, stadiums, and transportation facilities and captures high-quality waste data and informs staff when it gets full.

5. Project Design:

5.1 Data Flow Diagram:

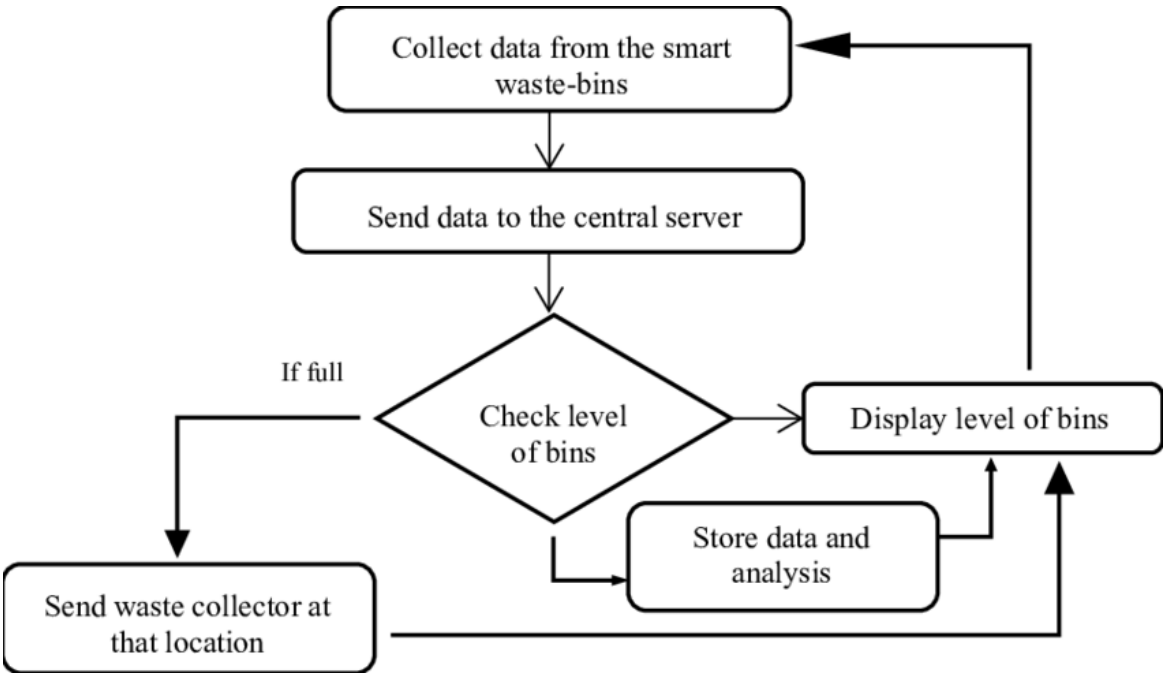
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirementgraphically.

It shows how data enters and leaves the system, what changes the information, and where data is stored.

A smart waste management platform uses analytics to translate the data gather in your bins into actionable insights to help you improve your waste services.

You can receive data on metric such as:

- The first test conducted is the situation where the garbage bin is empty or its garbage level is very low
- Then, the bin is filled with more garbage until its level has surpassed the first threshold value, which is set to 80%then the first warning SMS is being sent, as depicted
- The first notification SMS sent by the system, once the waste reaches the level of 85%.
- The second notification SMS sent by the system, indicating that bin is at least 95% full.
- Locations prone to overflow
- The number of bins needed to avoid overflowing waste
- The number of collection services that could be saved
- The amount of fuel that could be saved
- The driving distance that could be saved



5.2 Solution & Technical Architecture:

TABLE-1:

COMPONENTS & TECHNOLOGIES

S. N0	COMPONENTS	DESCRIPTION	TECHNOLOGY
1	User Interface	How the user interacts with the application e.g., Web UI, Mobile App.	HTML, CSS, JavaScript / Angular Js / React Js etc.
2	Application Logic-1	The logic for a process in the application.	Python
3	Application Logic-2	The logic for a process in the application.	IBM Watson IoT service.

4	Application logic-3	The logic for a process in the application.	IBM Watson Assistant.

TABLE-2:
APPLICATION CHARACTERTICS:

SL.NO	CHARACTERISTICS	DESCRIPTION	TECHNOLOGY
1.	Open-Source Frameworks	List the open-source frameworks used.	The technology of the Opensource framework.
2.	Security Implementations	Sensitive and private data must be protected from their production until the decision making and storage stages	e.g., Node-Red, Open weather App API, MIT App Inventor, etc
3.	Scalable Architecture	scalability is a major concern for IoT platforms. It has been shown that different architectural choices of IoT platforms affect system scalability and that automatic realtime decision-making is feasible in an environment composed of dozens of thousand.	Technology used.
4.	Availability	Automatic adjustment of farming equipment is made possible by linking information like crops/weather and equipment to auto-adjust temperature, humidity, etc.	Technology used.
5.	Performance	The idea of implementing sensors with gas leakage will be more efficient for monitoring	Technology used.

5.3 Users Stories:

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

Use the below template to create product backlog and sprint schedule

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.	4	High	C.Nivetha
Sprint-1	Confirmation	USN-2	As a user, I will receive confirmation email once I have registered for the application	4	High	S.Shajitha
Sprint-2		USN-3	As a user, I can register for the application through Facebook	10	Low	R.V.Raveena
Sprint-1		USN-4	As a user, I can register for the application through Gmail	4	Medium	S.Sruthi
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	4	High	C.Nivetha
Sprint-2	Dashboard	USN-6	As a User, I can Navigate to the Dashboard after successfully Login to the Application.	10	High	S.Shajitha
Sprint-1	Notification	USN-7	As a user when there is an anomalous situation with the child, a notification will be received through the fencing application.	4	High	R.V.Raveena
Sprint-3	Support	USN-8	As a User, I can connect with experts to clear Queries, they assist to overcome challenges by	10	Medium	S.Sruthi

6.Project Planning & Scheduling:

6.1 Sprint Planning & Estimation:

1. **Preparation Phase**

➔ Pre-requisites

✓ IBM Cloud Services

✓ Software

➔ Project Objectives

✓ Abstract

✓ Brainstorming

2. **Create and Configure IBM Cloud Services**

➔ Create IBM Watson IoT Platform and Device

➔ Create Node Red Service

➔ Create a Database in Cloudant DB

3. **Develop the Python Script**

➔ Develop a Python Script

➔ Publish Data to the IBM Cloud

4. **Develop a web application using Node-RED Service**

➔ Develop a web application using Node-RED

✓ Registrations

✓ Environment Set-up

➔ Use Dashboard Nodes For Creating UI(Web App)

5. **Ideation Phase**

➔ Literature Survey

➔ Empathize

➔ Defining Problem Statement

➔ Ideation

6. **Project Design Phase 1**

➔ Proposed Solution

➔ Problem Solution Fit

➔ Solution Architecture

7. **Project Design Phase 2**

➔ Requirement Analysis

➔ Customer Journey

➔ Data flow Diagram

➔ Technology Architecture

8. **Project Planning Phase**

➔ Milestone and Tasks

➔ Sprint Schedules

9. Project Development Phase

➔ Project Development-Delivery Of Sprint-1

➔ Project Development-Delivery Of Sprint-2

➔ Project Development-Delivery Of Sprint-3

➔ Project Development-Delivery Of Sprint-4

6.2 Sprint Delivery Schedule:

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

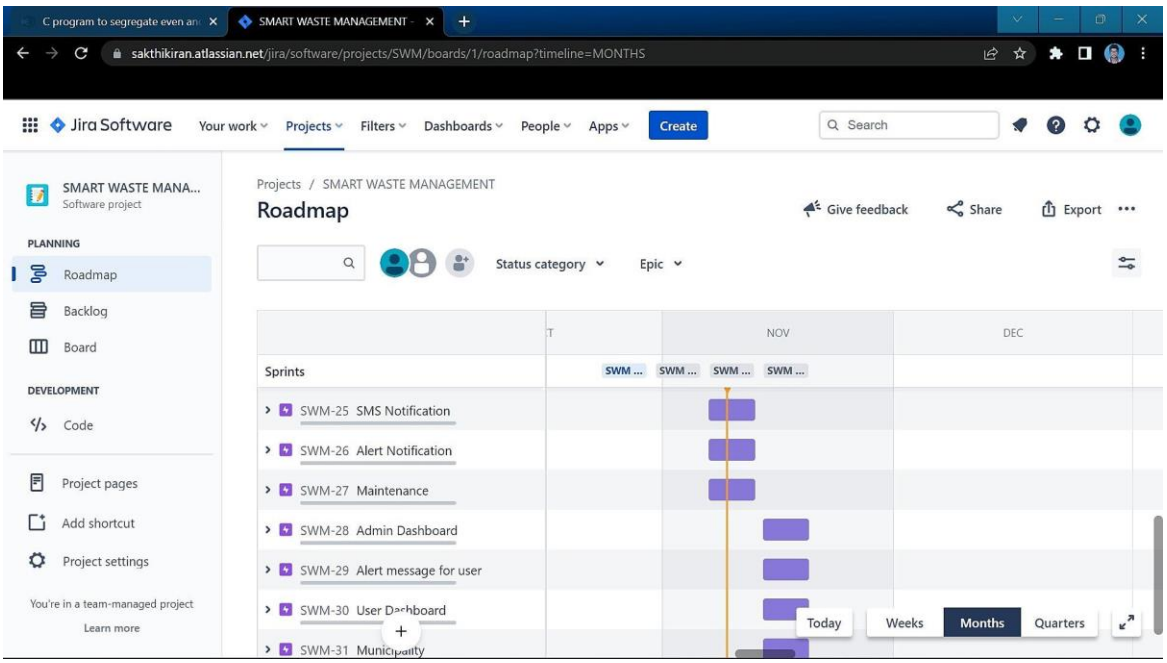
Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	3 Nov 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

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)

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

6.3Report from JIRA:


C program to segregate even an
SMART WASTE MANAGEMENT
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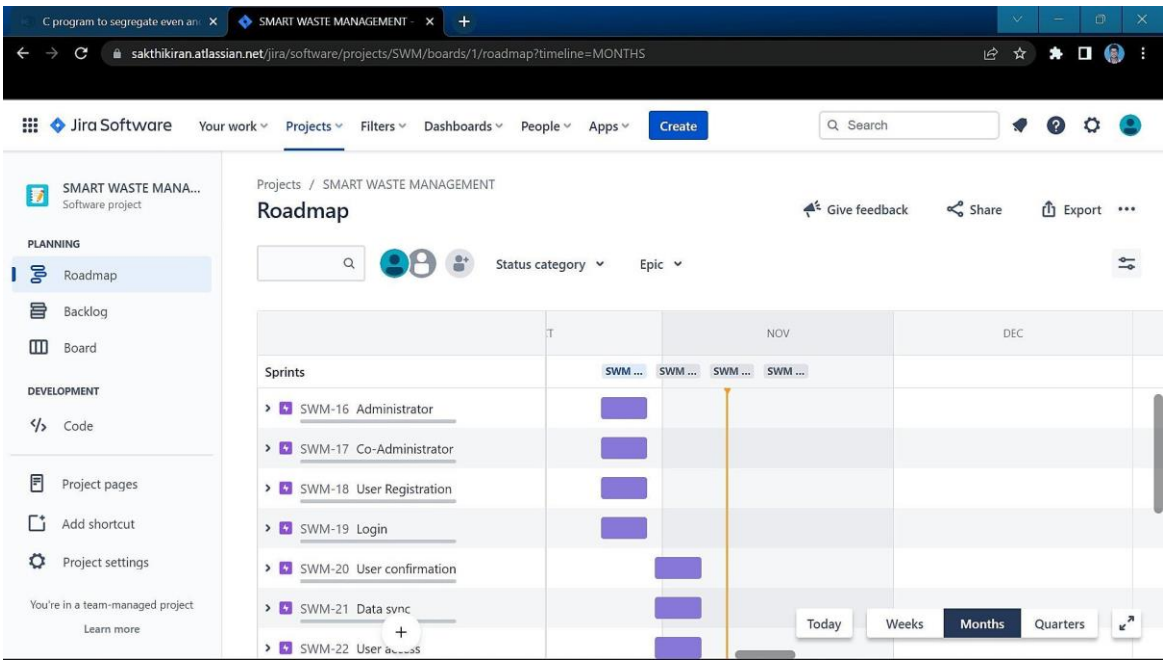
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
SMART WASTE MANA...
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / SMART WASTE MANAGEMENT
Roadmap
Give feedback
Share
Export
Status category
Epic
NOV
DEC
Sprints
SWM ...
SWM-25 SMS Notification
SWM-26 Alert Notification
SWM-27 Maintenance
SWM-28 Admin Dashboard
SWM-29 Alert message for user
SWM-30 User Dashboard
SWM-31 Municipality
Today
Weeks
Months
Quarters


C program to segregate even an
SMART WASTE MANAGEMENT
sakthikiran.atlassian.net/jira/software/projects/SWM/boards/1/roadmap?timeline=MONTHS
Jira Software
Your work
Projects
Filters
Dashboards
People
Apps
Create
Search
SMART WASTE MANA...
Software project
PLANNING
Roadmap
Backlog
Board
DEVELOPMENT
Code
Project pages
Add shortcut
Project settings
You're in a team-managed project
Learn more
Projects / SMART WASTE MANAGEMENT
Roadmap
Give feedback
Share
Export
Status category
Epic
NOV
DEC
Sprints
SWM ...
SWM-16 Administrator
SWM-17 Co-Administrator
SWM-18 User Registration
SWM-19 Login
SWM-20 User confirmation
SWM-21 Data sync
SWM-22 User access
Today
Weeks
Months
Quarters

7

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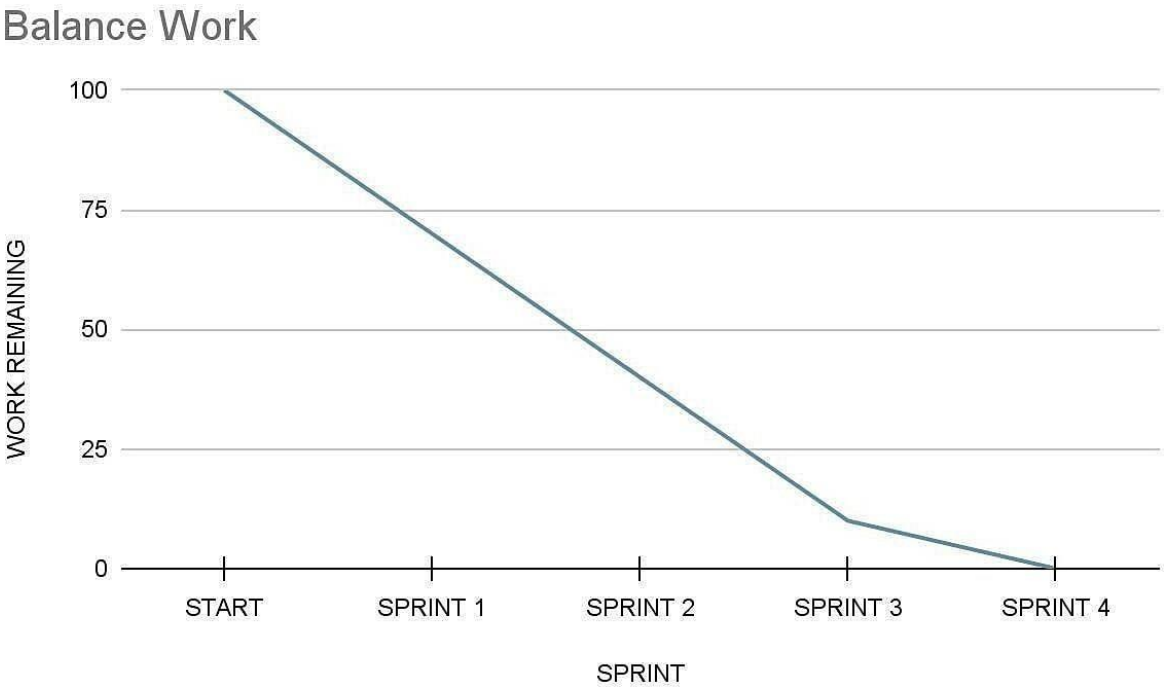
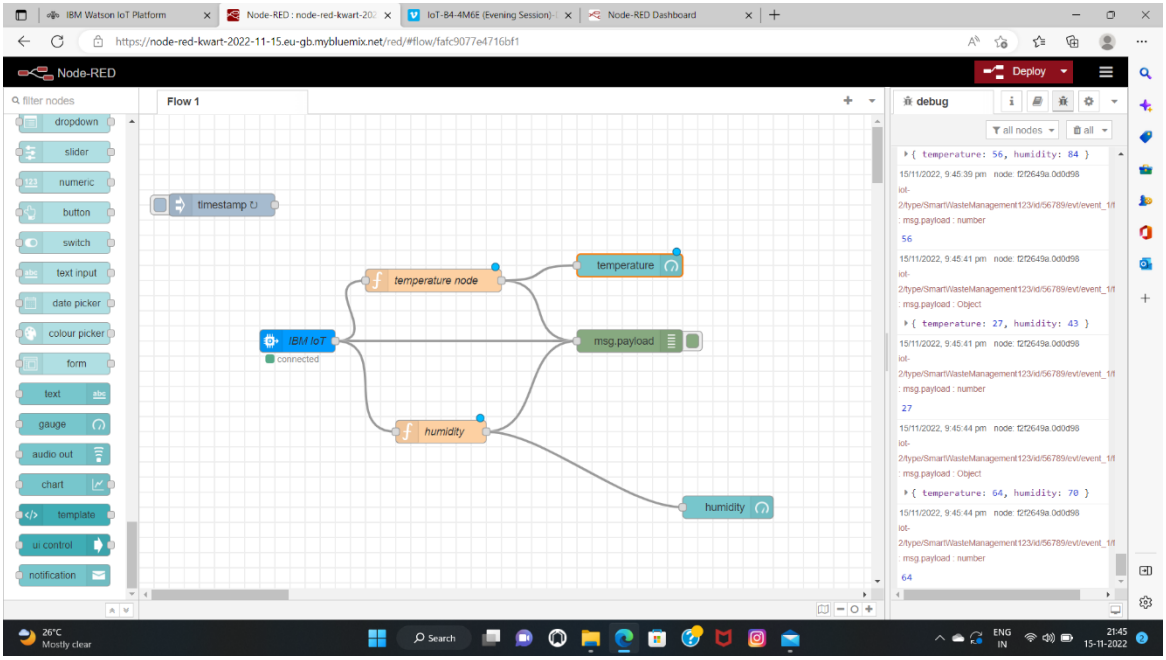
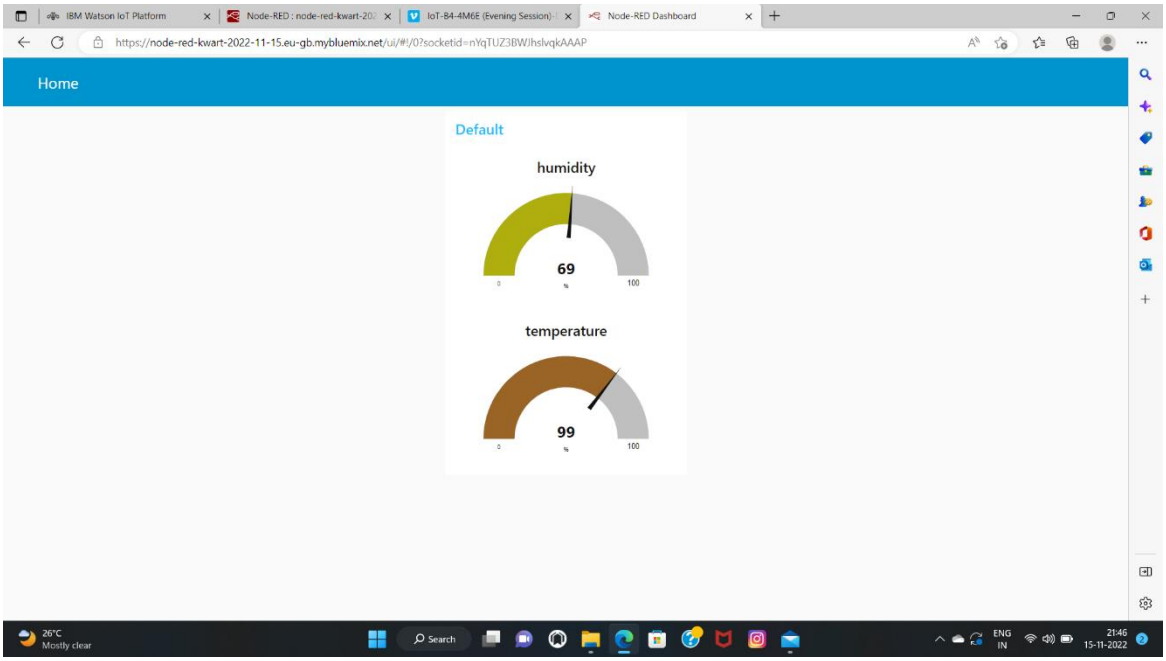


7.Coding & Solutioning:

7.1 Feature 1:

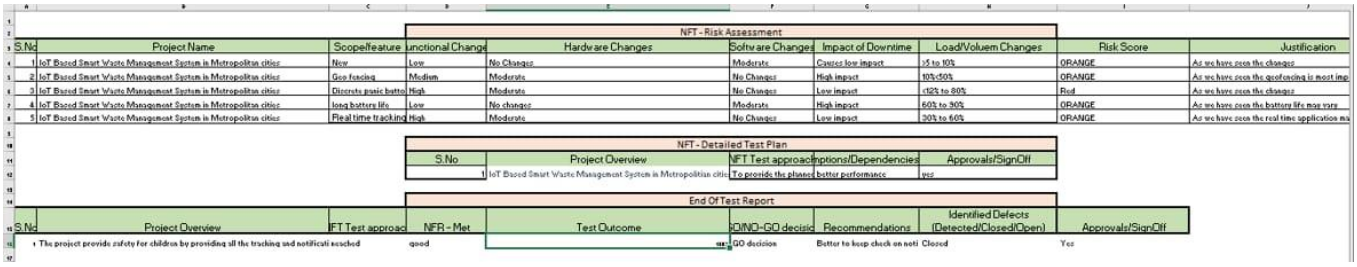


7.2 Feature 2:



9.Results:

9.2Performance Metrices:



			NFT - Risk Assessment						
S.No	Project Name	Scope/feature	unctional Change	Hardware Changes	Software Changes	Impact of Downtime	Load/Voluem Changes	Risk Score	Justification
1	IoT Based Smart Waste Management System in Metropolitan cities	New	Low	No Changes	Moderate	Causes low impact	>5 to 10%	ORANGE	As we have seen the changes
2	IoT Based Smart Waste Management System in Metropolitan cities	Geo fencing	Modium	Moderate	No Changes	High impact	10%<50%	ORANGE	As we have seen the geofencing is most imp
3	IoT Based Smart Waste Management System in Metropolitan cities	Discrete panic button	High	Moderate	No Changes	Low impact	<10% to 80%	Red	As we have seen the changes
4	IoT Based Smart Waste Management System in Metropolitan cities	long battery life	Low	No changes	Moderate	High impact	60% to 90%	ORANGE	As we have seen the battery life may vary
5	IoT Based Smart Waste Management System in Metropolitan cities	Real time tracking	High	Moderate	No Changes	Low impact	30% to 60%	ORANGE	As we have seen the real time application ma

	NFT - Detailed Test Plan		
S.No	Project Overview	NFT Test approac	mptions/Dependencies	Approvals/SignOff
1	IoT Based Smart Waste Management System in Metropolitan citie	To provide the planned	better performance	yes

	End Of Test Report						
S.No	Project Overview	IFT Test approac	NFR - Met	Test Outcome	GO/NO-GO decisio	Recommendations	Identified Defects (Detected/Closed/Open)	Approvals/SignOff
1	The project provide safety for children by providing all the tracking and notificati reached		good		GO decision	Better to keep check on noti	Closed	Yes

10. ADVANTAGES AND DISADVANTAGES

Advantages

- The garbage will be collected on time-to-time basis.
- There would not be any bad smell around the bin.
- Real time notification to collect the garbage.
- Saving on fuel consumption, thus reducing the threat to the environment.
- It saves time and money by using smart waste collection bins and systems equipped with fill level sensors. As smart transport vehicles go only to the filled containers or bins. It reduces infrastructure, operating and maintenance costs by upto 30%

- It decreases traffic flow and consecutively noise due to less air pollution as result of less waste collection vehicles on the roads. This has become possible due to two way communication between smart dustbins and service operators.
- It keeps our surroundings clean and green and free from bad odour of wastes,
  emphasizes on healthy environment and keep cities more beautiful.
- It further reduces manpower requirements to handle the garbage collection process.
- Applying smart waste management process to the city optimizes management, resources and costs which makes it a "smart city".
- It helps administration to generate extra revenue by advertisements on smart devices.

Disadvantages

- It requires a well structured hardware.
- The onetime cost of installation will be higher than the present technique.
- System requires more number of waste bins for separate waste collection as per population in the city. This results into high initial cost due to expensive smart dustbins compare to other methods.
- Sensor nodes used in the dustbins have limited memory size.
- Wireless technologies used in the system such as zigbee and wifi have shorter range and lower data speed. In RFID based systems, RFID tags are affected by surrounding metal objects (if any).
- It reduces man power requirements which results into increase in unemployment for unskilled people.
- The training has to be provided to the people involved in the smart waste management system.

11. CONCLUSION

A Smart Waste Management system that is more effective than the one in use now is achievable by using sensors to monitor the filling of bins. Our conception of a "smart waste management system" focuses on monitoring waste management, offering intelligent technology for waste systems, eliminating human intervention, minimizing human time and effort, and producing a healthy and trash-free environment. The suggested approach can be implemented in smart cities where residents have busy schedules that provide little time for garbage management. If desired, the bins might be put into place in a metropolis where a sizable container would be able to hold enough solid trash for a single unit. The price might be high.

12. FUTURE SCOPE

The main aim of this project is to reduce human resources and efforts along with the enhancement of a smart city vision. We have often seen garbage spilling over from dustbins on to streets and this was an issue that required immediate attention. The proverb “Cleanliness is next to god and clean city is next to heaven” inspired us to conceptualized the project. Smart dustbin helps us to reduce the pollution. Many times garbage dustbin is overflow and many animals like dog or rat enters inside or near the dustbin. This creates a bad scene. Also some birds are also trying to take out garbage from dustbin. This project can avoid such situations. birds are also trying to take out garbage from dustbin. This project can avoid such situations. And the message can be sent directly to the cleaning vehicle instead of the contractor’s office. Swatch Bharat Abhiyan (English: Clean India Mission and abbreviated as SBA or SBM for "Swatch Bharat Mission") is a national campaign by the Government of India, covering 4,041 statutory cities and towns, to clean the streets, roads and infrastructure of the country. In our system, the Smart dustbins are connected to the internet to get the real time information of the smart dustbins. In the recent years, there was a rapid growth in population which leads to more waste disposal. So a proper waste management system is necessary to avoid spreading some deadly diseases.

13. APPENDIX

SOURCE CODE :

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


    #Provide your IBM Watson Device Credentials
    organization = "nw3318"


    deviceType = "123"
    deviceId =
    "1234567"


    authMethod = "token"
    authToken = "12345678"


    # Initialize GPIO


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


    status=cmd.data['com
    mand'] if
    status=="lighton":
```

```
print ("led is
on") elif status
== "lightoff":

print("led is
off") elif status
== "motoron":

print("motor is
on") elif status
== "motoroff":
print("motor is
off") else : print
("please send
proper
command")
#print(cmd)

try:

deviceOptions = {"org": organization, "type": deviceType, "id": deviceId, "auth-
method": authMethod, "auth-token": authToken} deviceCli =
ibmiotf.device.Client(deviceOptions)
#.....

except Exception as e:
print("Caught exception connecting device: %s" %
str(e)) sys.exit()

# Connect and send a datapoint "hello" with value "world" into the cloud as an event of type
```

```
"greeting" 10 times
deviceCli.connect()

while True:
#Get Sensor Data from DHT11

temp=random.randint(0,100)
humid=random.randint(0,100)
soilmoist=random.randint(0,100)

data = { 'temp' : temp, 'humid': humid, 'soilmoist': soilmoist }
#print data


def myOnPublishCallback():
print ("Published Temperature = %s C" % temp, "Humidity = %s %%" % humid,"Soilmoisture =
%s %%" % soilmoist, "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()
```

GITHUB LINK:

https://github.com/IBM-EPBL/IBM-Project-40683-1660632744

PROJECT DEMO LINK:

https://youtu.be/abxyRFosxME