Project report

NAME : B.G.KEDARNATH REDDY

TITLE : SMARTKITCHEN USING IBM CLOUD

CATEGORY:INTERNET OF THINGS

Internship at smartinternz.com

SMART KITCHEN USIN

SMART KITCHEN USING IBM CLOUD

Aim and scope:-

Smart kitchen is what the future kitchens look like. We can integrate the technology with the things in kitchen to make out daytoday life hastle free

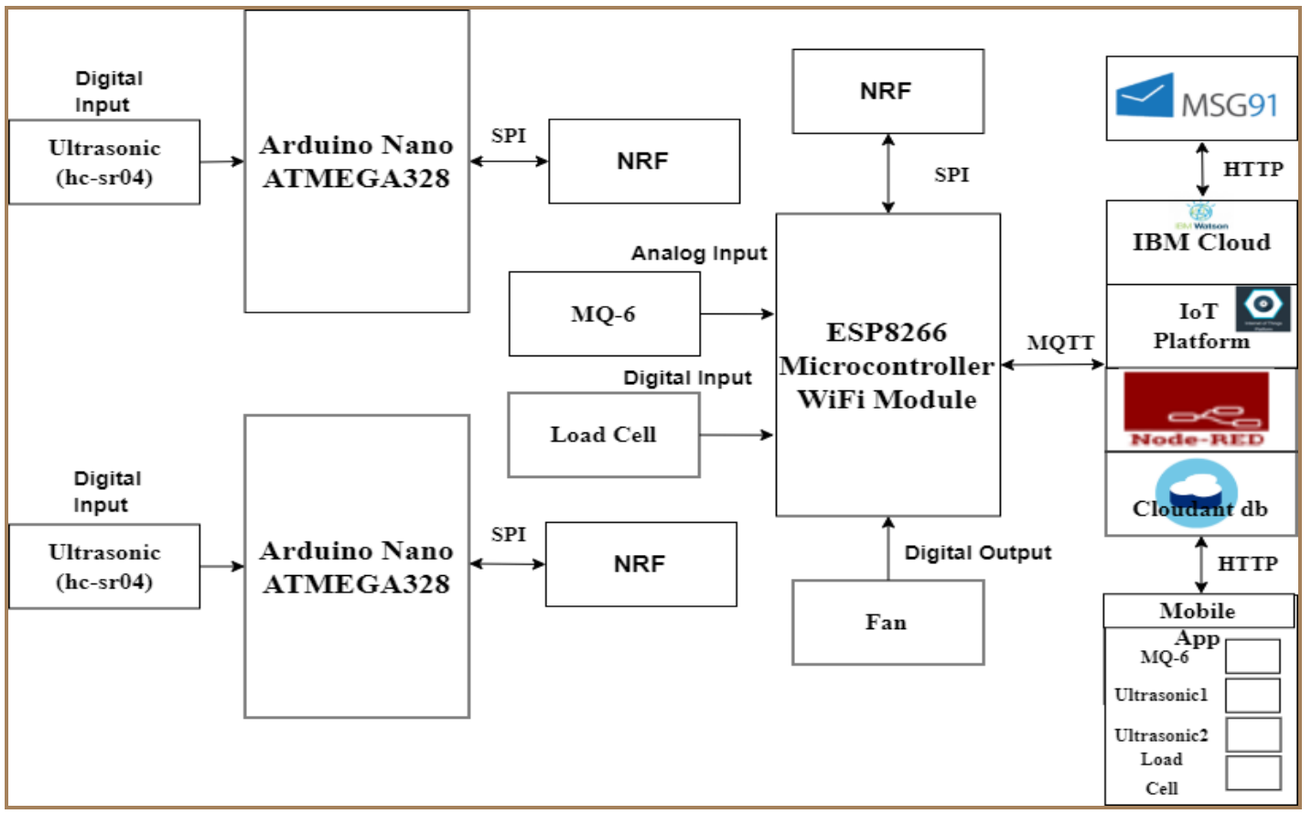
Features:

- We can replace all the regular storage jars with the smart jars, which sends an alert when the jar gets empty or the measured sensor value is below the threshold.
- These jars communicate with the controller through Nrf communication.
- The cylinder is attached with a leakage sensor that detects the leakage from the cylinder and sends a notification if any leakage is detected.
- If any leakage is detected the exhaust fans are automatically switched ON.
- Cylinder weight is also measured and sends an alert when it is empty, based on the empty

cylinder weight.

- All these parameters can be monitored by both Mobile App and Web App.

The project flow can be seen in the following diagram



Project deliverables:

1. ***Create an ibm account, create nodered application , create a ibm watson iot platform***
2. ***Create a fast2sms account (for sending alert messages)***
3. ***Code snippet for sending sensor data to the watsoniot platform and for sending alert messages to the user***
4. ***Create the nodered flow to get data from the device and http request to commuicate with the mobile app***
5. ***Create a mobile app using MIT APP INVENTOR and configure it to get data from the cloud***

PROJECT TEAM:B.G.KEDARNATH REDDY

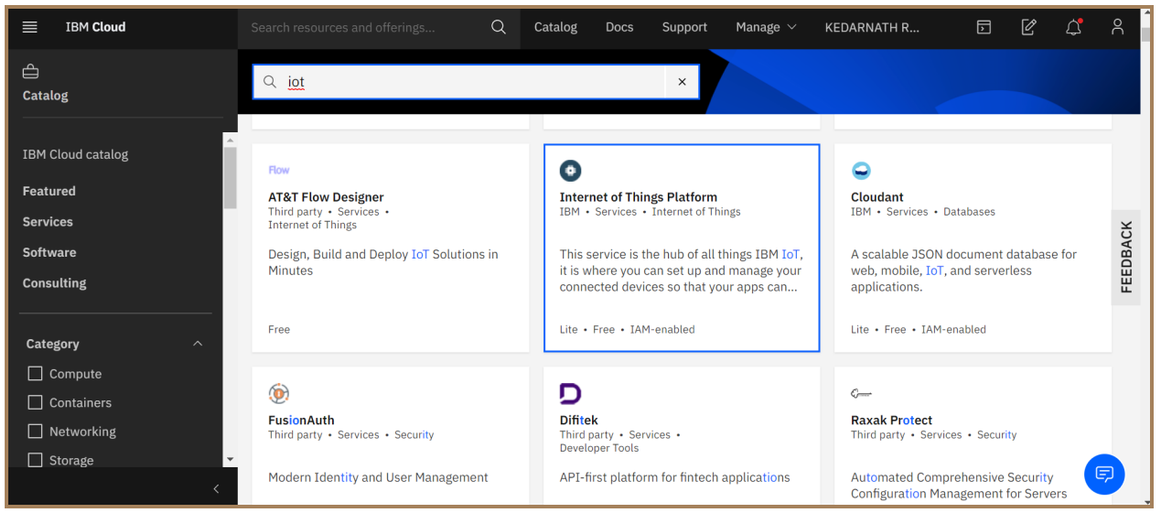
1. ***Create an ibm account, create nodered application , create a ibm watson iot platform:-***

We need a cloud to send sensor data so I am using IBM cloud for this task

1. Open the website cloud.ibm.com in your browser

2. Sign up with your details to create an account in the cloud

Go to catalog, search internet of things in the search bar and select INTERNET OF THINGS PLATFORM there



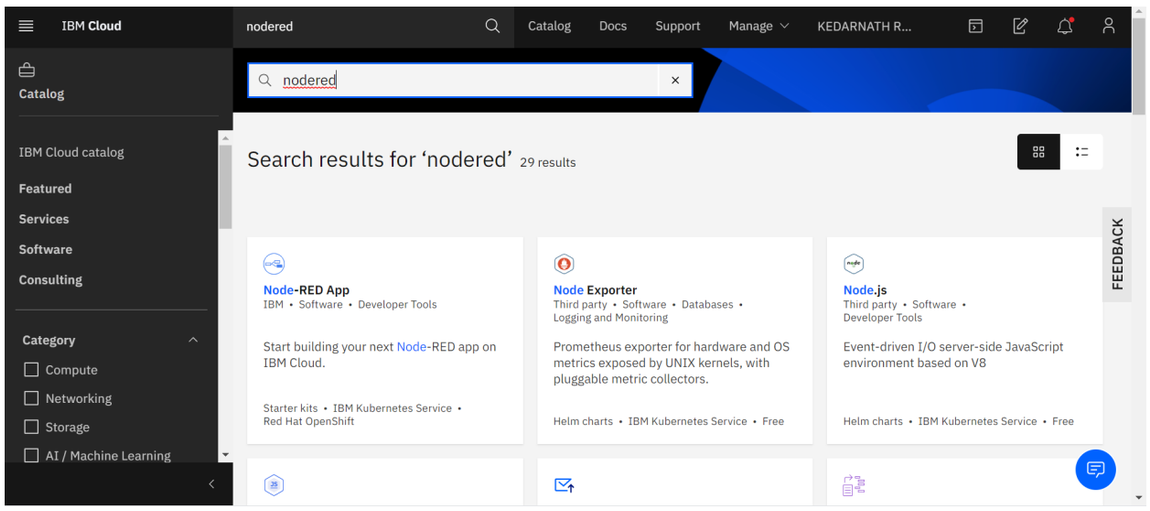
Now create that service

After creation that service press on the launch button on the dash board

After launching the watson iot platform add a device in it

After this come to the cloud main page

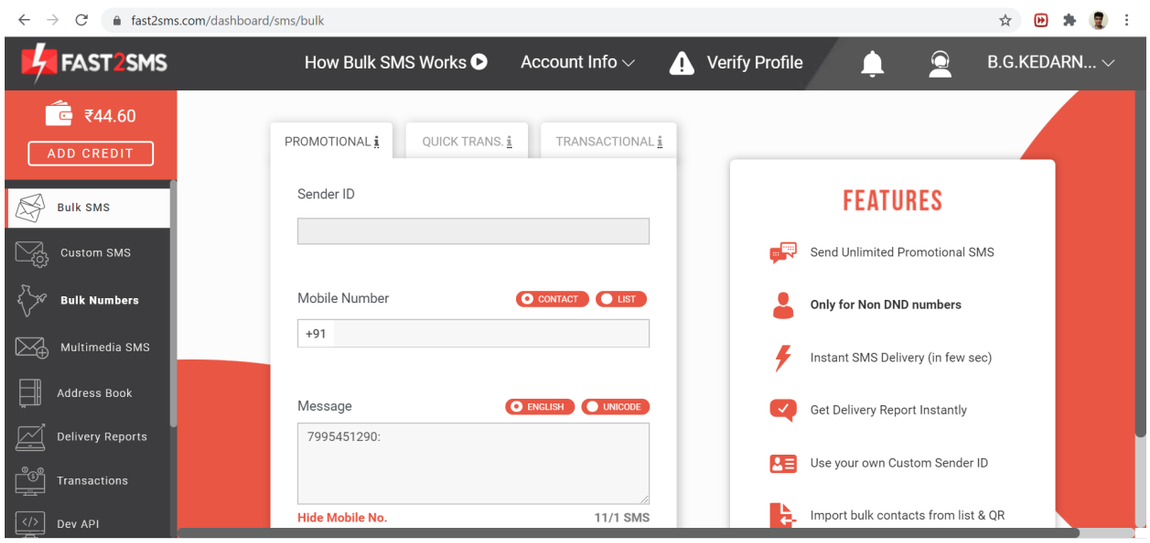
Search nodered in the catalog, click on the nodered app and create nodered application



2.Create a fast2sms account (for sending alert messages):-

Now create fast2sms account to send alert messages to the user

Search fast2sms in browser open that website and create an account there



3.Code snippet for sending sensor data to the watsoniot platform and for sending alert messages to the user

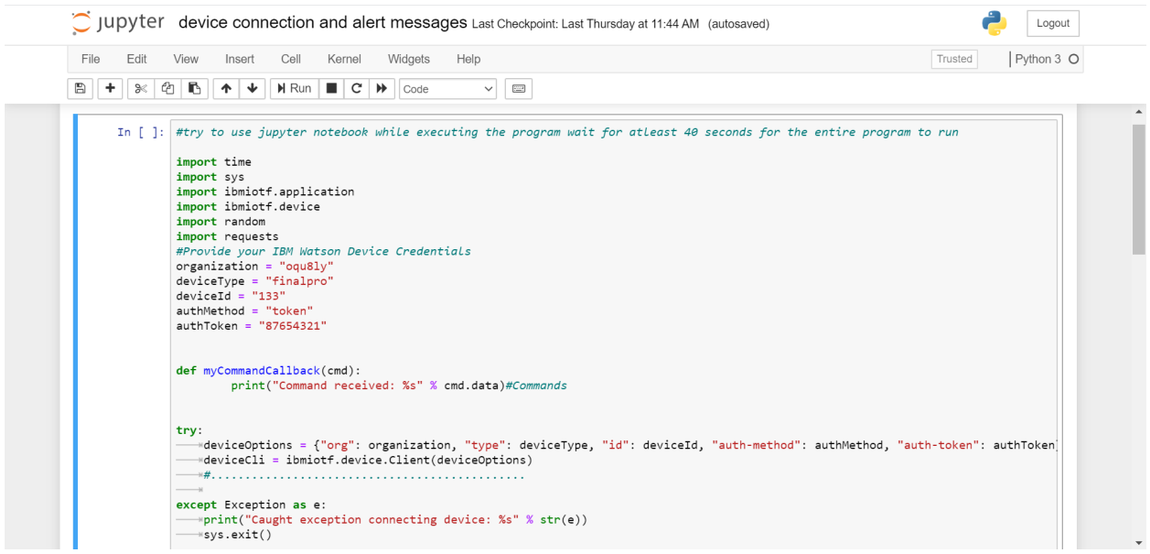
Note:- we dont have any sensors to send the data to the cloud so we send sensor data with python code

The following code is the code used for this task

In the below code enter the credentials of the device that you created in the watson iot platform

PYTHON CODE

NOTE:- DONT PLACE MESSAGE CODE INSIDE THE LOOP IF YOU DO THAT THE FLOW OF MESSAGES WONT STOP



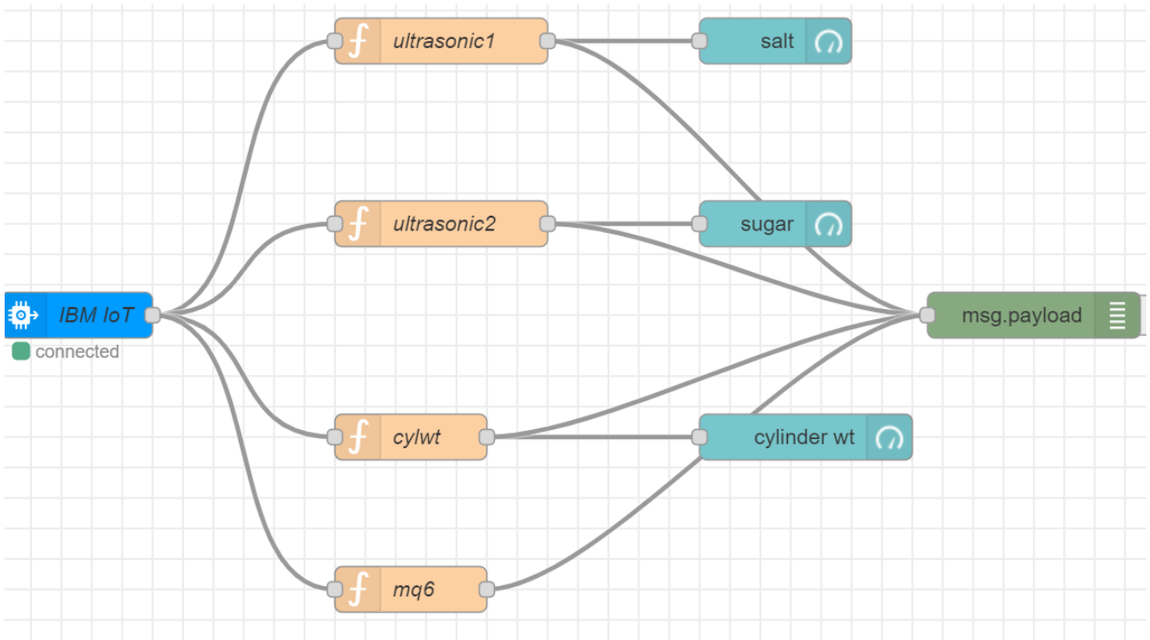
4. Create the nodered flow to get data from the device and http request to communicate

with the mobile app

We need to create two flows to do this task

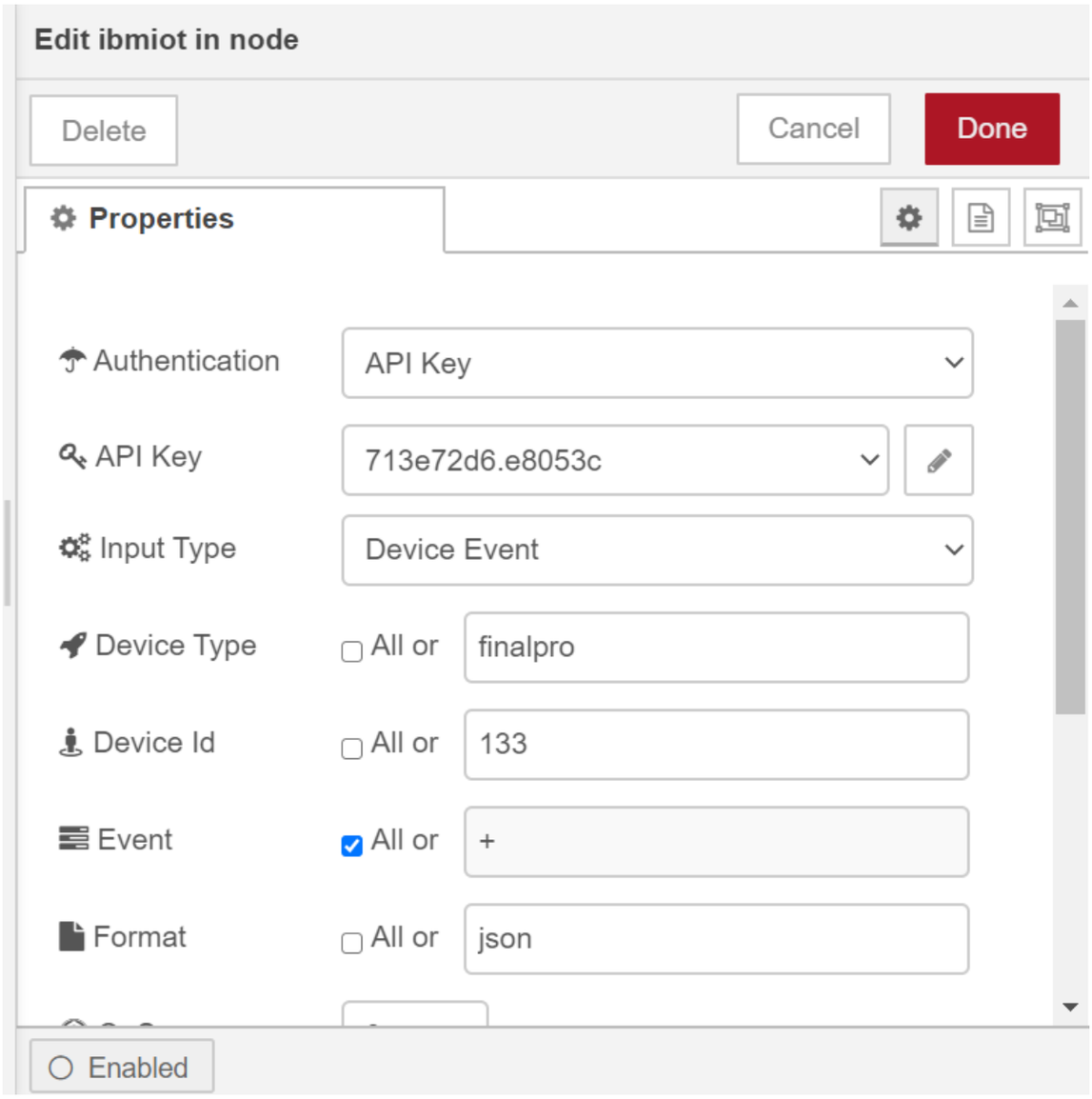
Flow1:-

To get data from the device



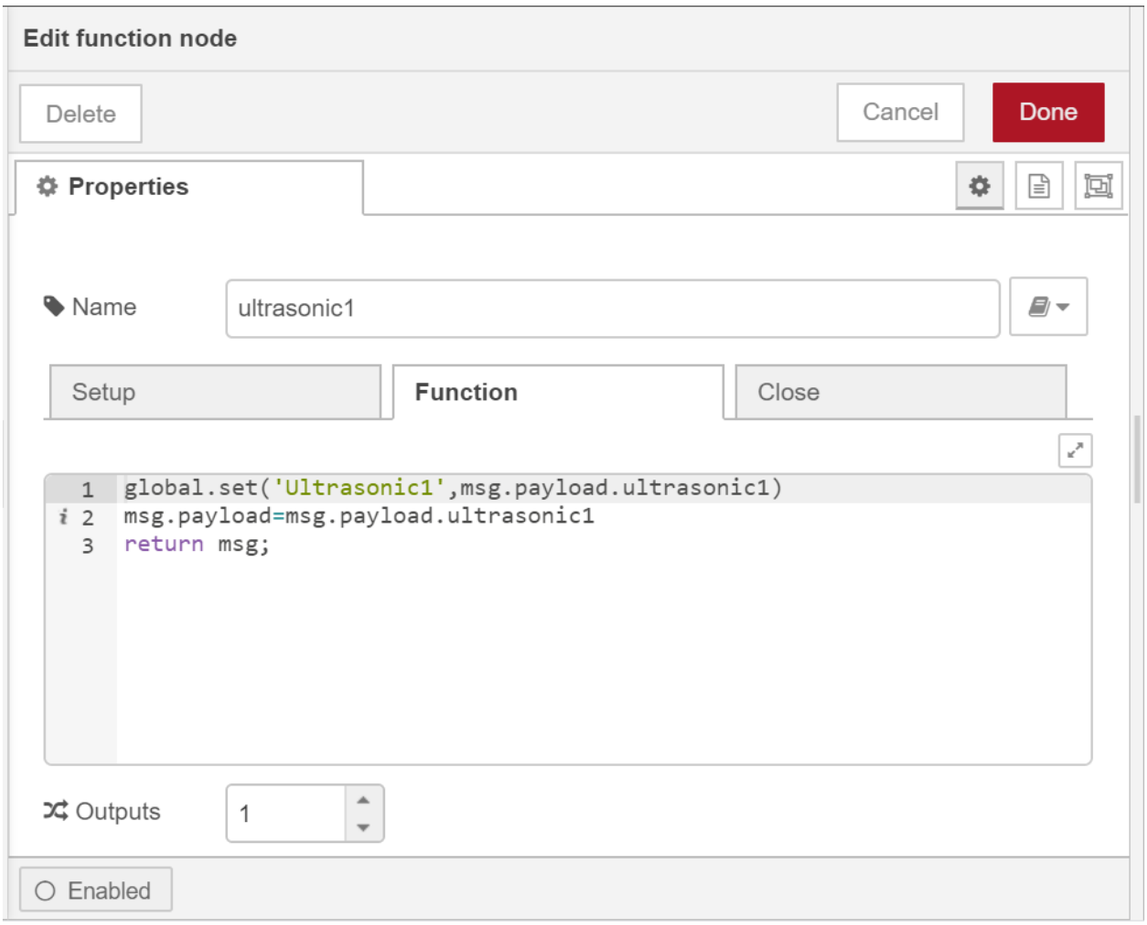
To connect ibmiot device node to the device double click on the node and enter the device credentials of the device that you have in your watson iot platform

like this



Now the data that comes from the device is combined you need to parse the data and display data individually

Code the function node like this



Codes of all 4 function nodes

1.

global.set('Ultrasonic1',msg.payload.ultrasonic1)

msg.payload=msg.payload.ultrasonic1

return msg;

2.

global.set('Ultrasonic2',msg.payload.ultrasonic2)

msg.payload=msg.payload.ultrasonic2

return msg;

3.

global.set('Cylwt',msg.payload.cylwt)

msg.payload=msg.payload.cylwt

return msg;

4.

global.set('Mq6',msg.payload.mq6)

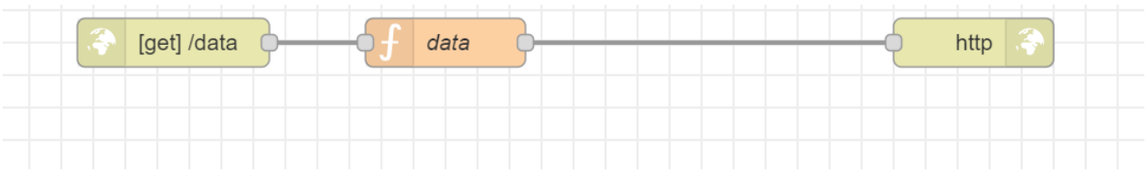
msg.payload=msg.payload.mq6

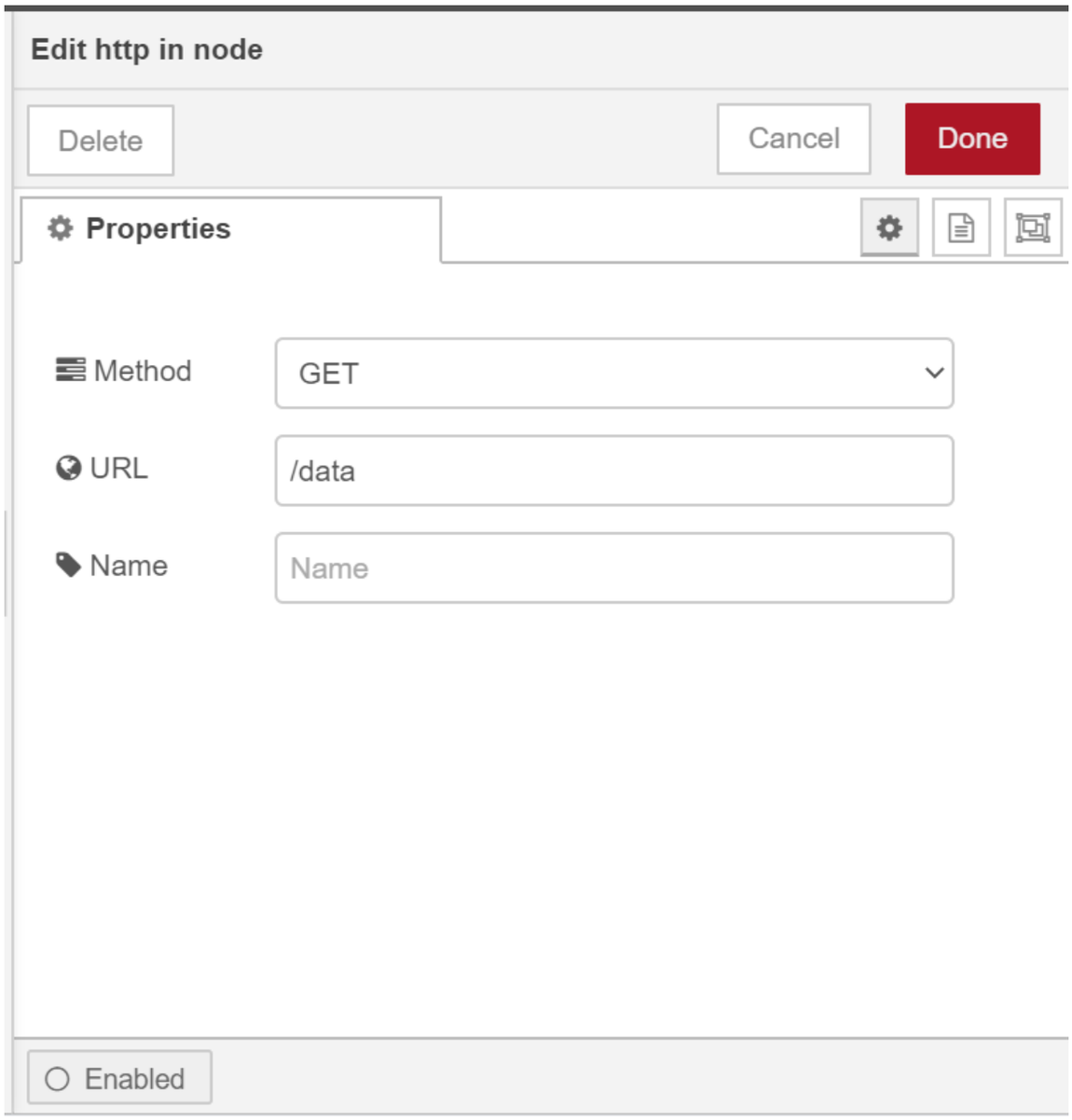
return msg;

connect those function nodes to gauges to display information on the dashboard

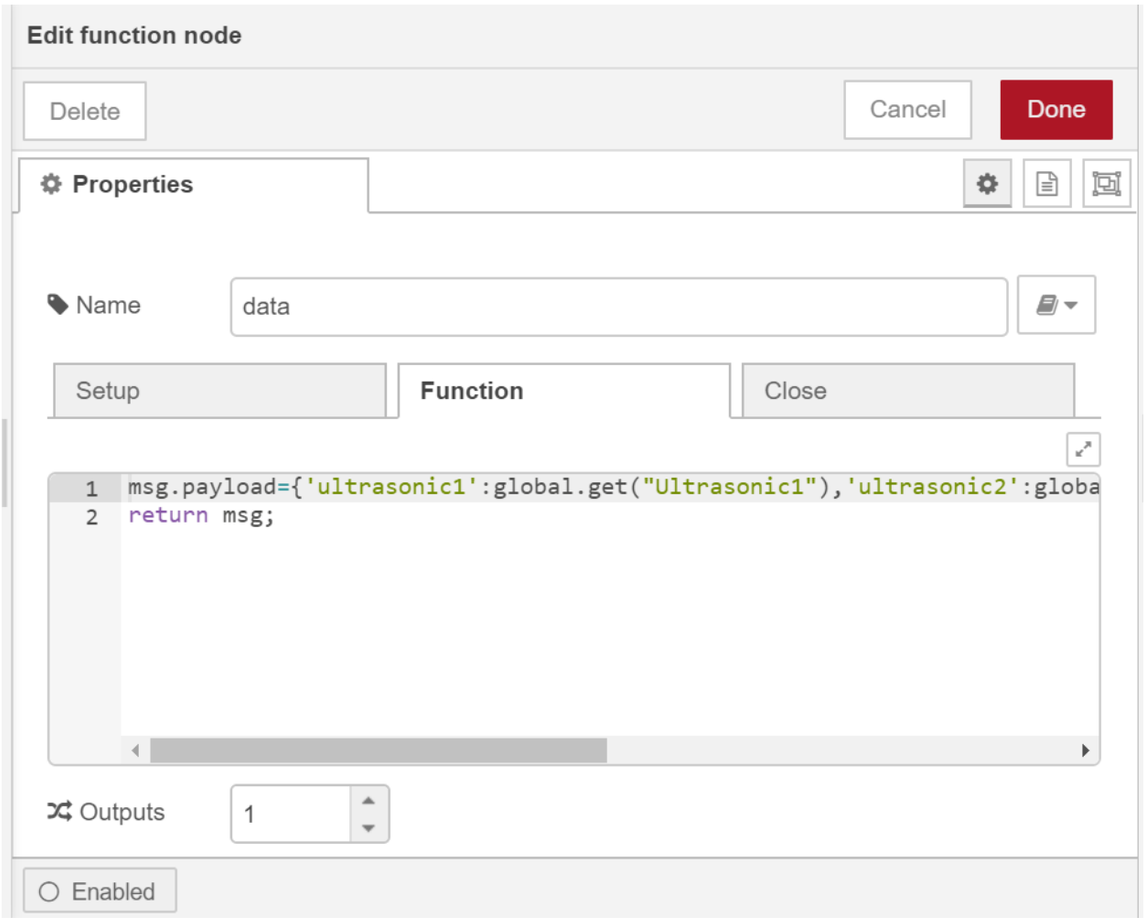
Flow2:-

To create http request to communicate with mobile app





configure httpin node like this



function node like this

code for the function node

msg.payload={'ultrasonic1':global.get("Ultrasonic1"),'ultrasonic2':global.get("Ultrasonic2"),'cylwt':global.get("Cylwt"),'mq6':global.get("Mq6")}

return msg;

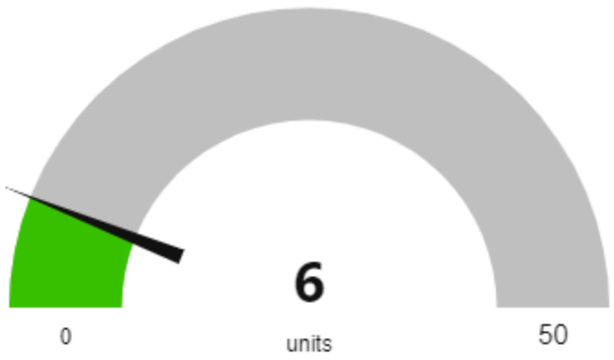
By this flow we are sending data to the server

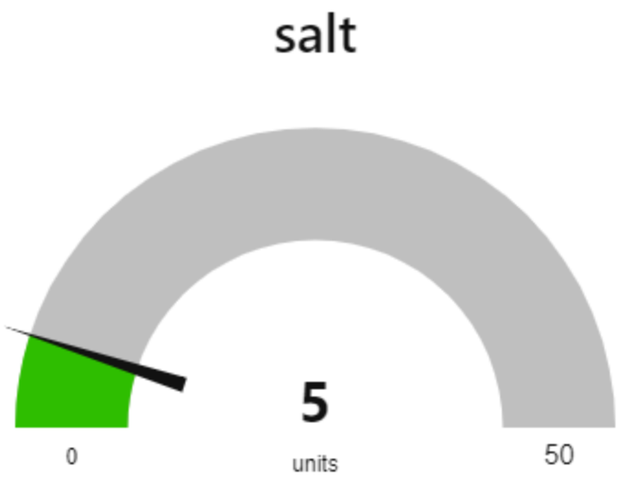
The data that has been sent to the server will be like this

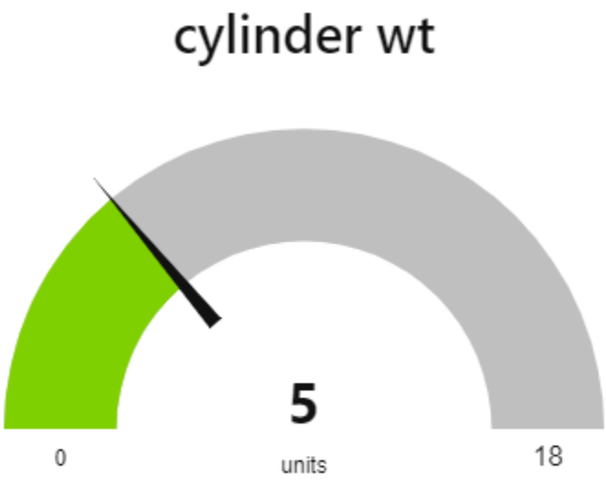
kedarnathreddy.eu-gb.mybluemix.net/data

{"ultrasonic1":5,"ultrasonic2":6,"cylwt":5,"mq6":"leakage"}

the web app ui will be like this







note:- cylwt is the weight of cylinder with 5 being empty weight

ultrasonic1 gives level of sugar and ultrasonic2 gives level of salt

in their respective jars

ultrasonic1 and ultrasonic2 are names sensors kept in jars

5. Create a mobile app using MIT APP INVENTOR and configure it to get data from the cloud

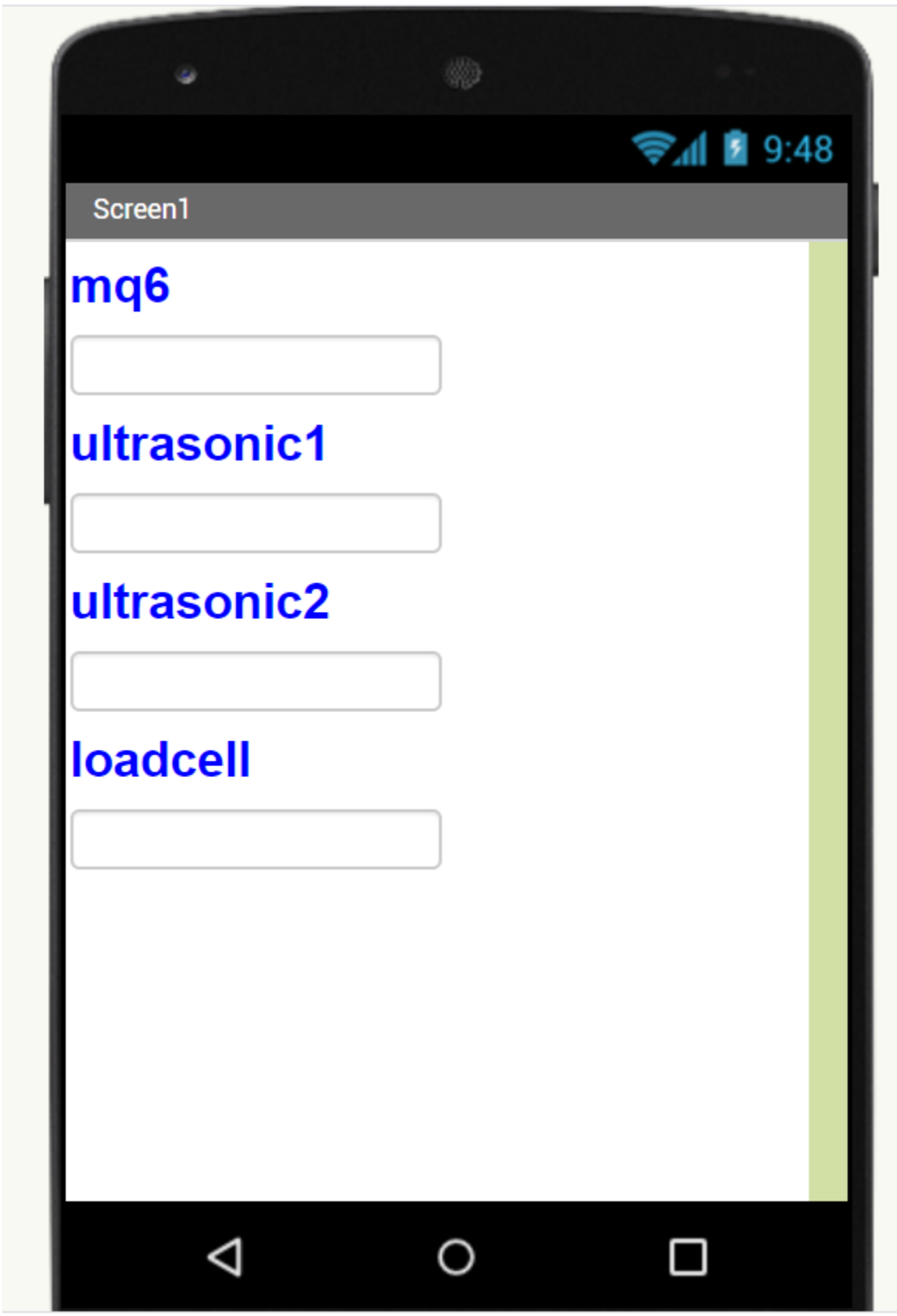
Open your browser and search 'mit app inventor' and open the website

Click on 'create apps' on the dashboard and login with your google account

Give the name of your project you should not give spaces in your project name

configure the ui of your app like this it should have 4 labels and

their respective text boxes



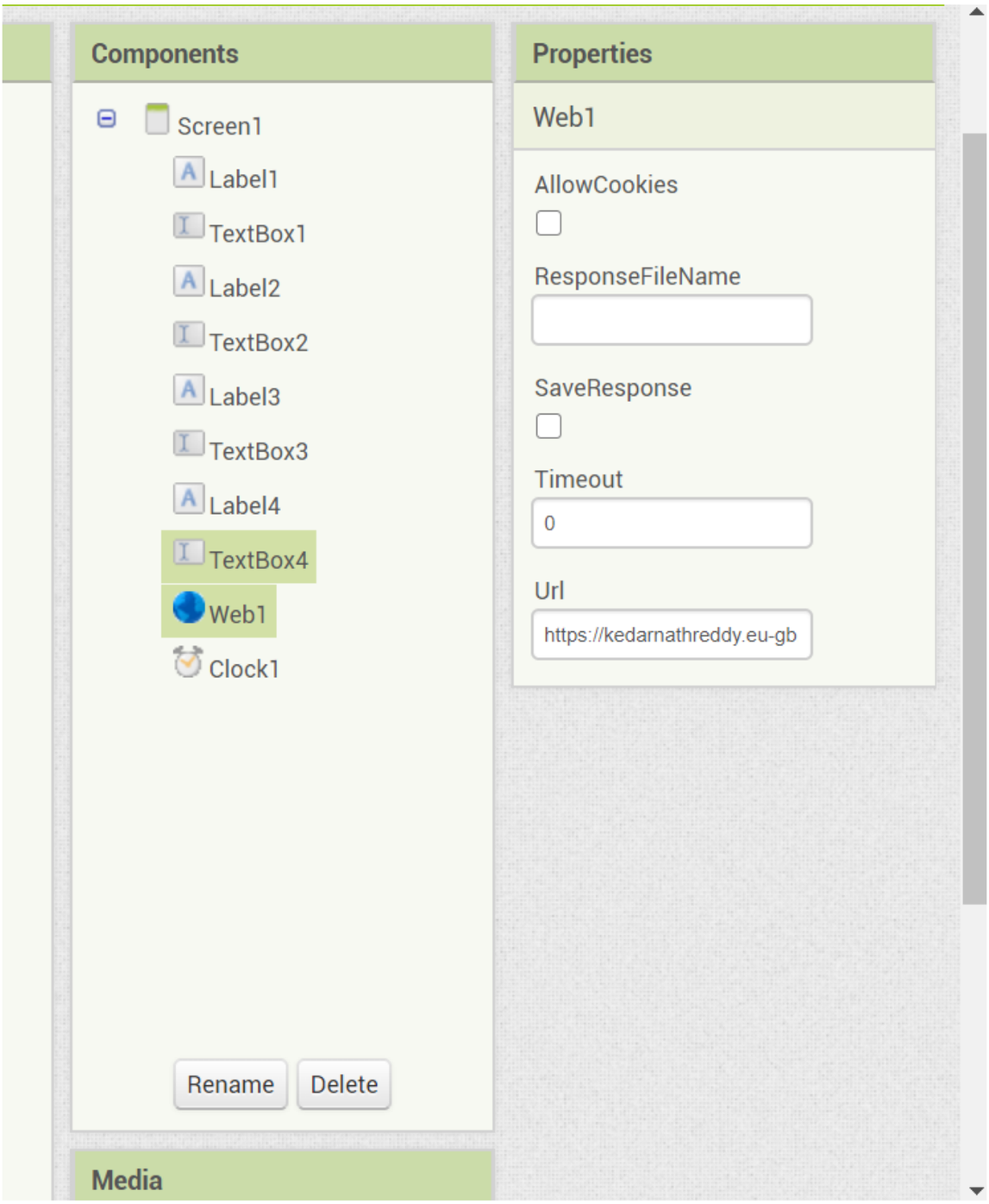
mq6 tells if there is any cng leakage in the kitchen

ultrasonic1 and ultrasonic2 gives the level of salt and sugar in the

respective jars

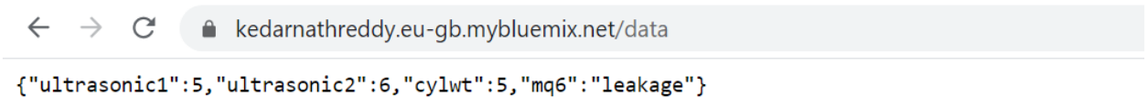
loadcell gives the weight of the cylinder

Now drop the web from connectivity on to the board and enter the url in the web



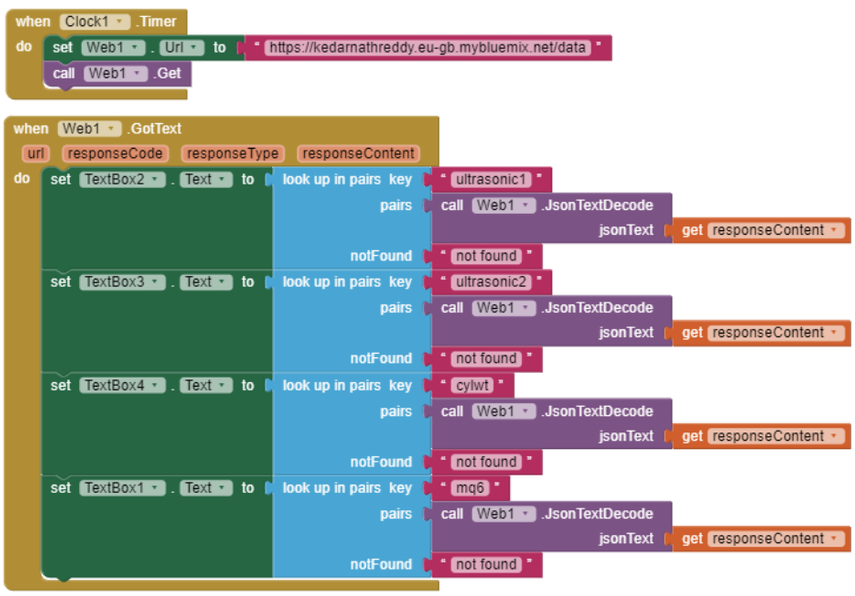
Note:-the app receives data from the url that you enter in web so you should enter the url that receives data from ibm device

Enter this url



Now click on the blocks on top right corner of screen and start arrenging the blocks to create backend of the app

Set the blocks in this manner for the text boxes

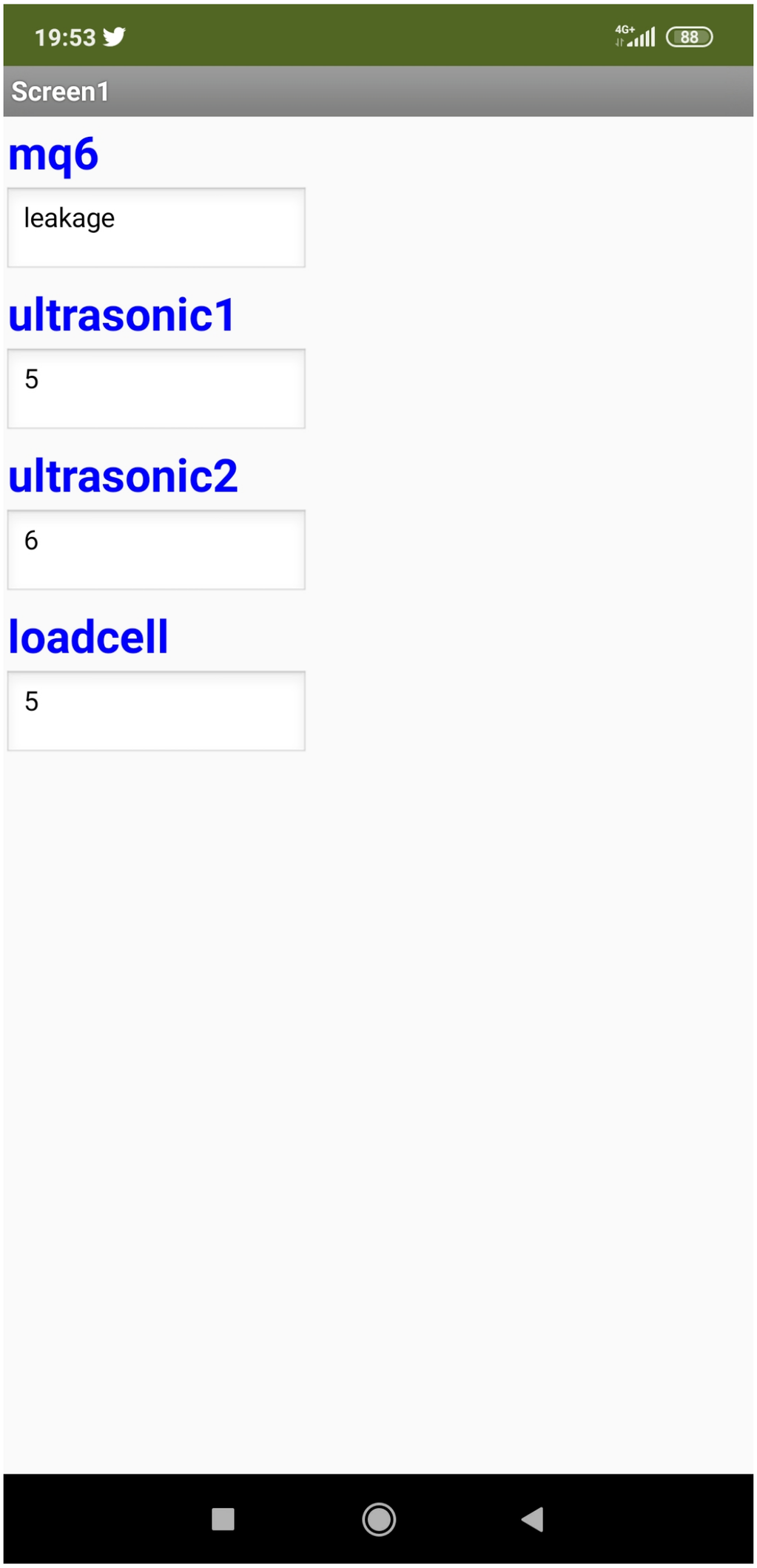


These blocks are there to decode data that is in the form of json

and display then in their respective text boxes

Now everything is done click on build option on the top of dashboard and download the apk file, install it in your mobile

the app opened on mobile will be like this


19:53
88
Screen1
mq6
leakage
ultrasonic1
5
ultrasonic2
6
loadcell
5

MQ6 showing there is a leakage

ultrasonic1 showing level of item in that jar

ultrasonic2 showing level of another jar

load cell showing weight of cylinder

This is end of the report

THE END