GUDLAVALLERU ENGINEERING COLLEGE



**ELECTRONICS AND COMMUNICATION ENGINEERING**

**PROJECT NAME: SMART NOTICE BOARD**

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**INDEX**

**TITLE PAGE NO.**

1. INTRODUCTION

1.1 Overview 3

1.2 Purpose 3

2. Literature Survey

2.1 Existing problem 4

2.2 Proposed solution 4

3. Theoretical Analysis

3.1 Block diagram 5

3.2 Software designing 5

4. Experimental Investigations 6

5. Flowchart 8

6. Result 9

7. Advantages & Disadvantages 10

8. Applications 10

9. Conclusion 11

10. Future Scope 11

11. Bibliography 11

12. Appendix

12.1 Source code 12

12.2 UI output Screenshot 13

**1.INTRODUCTION**

* 1. **Overview:**

Nowadays individuals like wireless connection because they can interact with people easily and it require less time. The main objective of this project is to develop a wireless notice board that display message sent from the user and to design a simple, easy to install, user friendly system, which may receive and display notice in a very specific manner with relevance date and time which will help the user to simply keep the track of notice board each day and every time he uses the system.

Notice board is an essential information gathering system in our life. Disseminations is much easier in a paperless community. In our day-to-day life, we can see notice boards in various places like educational institutions, railway stations, shopping malls, Bus stations, offices etc. So we can say that Notice boards are the places to leave public information such as advertise events, announce events or provide attention to the public, etc. Smart Notice Board is used in colleges in order to display notifications and we can also alert the people over with voice commands.

* 1. **Purpose:**

Notice Board is primary thing in any institution or organization or public utility places like bus stations, railway stations and parks. But sticking various notices day-to-day is a difficult process.

A separate person is required to take care of this notices display. There is a long process involved in order to put up notices on the notice board. In this project, we have proposed a Smart Notice Board that will works on both the modes that are notice board and quote mode.

Quote mode - Displays the default quotations saved in the cloud.

Notice mode - Displays the notifications sent from the web app.

And we also designed the voice commands whenever a notice or quote is displayed. And we can control the notice board through web application. The messages that have been sent from the web app are stored in the database. The application also contains a speech to text converter. So that admin can send text messages through his/her own voice.

**2.LITERATURE SURVEY**

**2.1 Existing Problem:**

Conventional Notice Board employs manual display and monitoring with papers and ledgers. The Target users are unaware of information displayed on the notice board. Displaying the notice on the Notice Board wastes a lot of resources like paper, printer ink, man power and also brings about loss of time. And also a separate person is required to take care of this notices display. Printing and photocopying costs very much.

There is a long process involved in order to put up notices on the notice board. There is also a chance of losing notice sheet. And there is also a limited availability. Conventional Notice Board also costs more and the information is not received by the end users at the right time.

**2.2 Proposed Solution:**

For solution of conventional Notice Board in this project we proposed Smart Notice Board. It also eliminates the use of printers. Transferring of information is also faster in smart notice board. So by introducing the smart notice board we can also overcome time and cost issues. The developed system will therefore aims in wirelessly sharing the information with intended users and also helps in saving the time and the cost for paper and printing hardware.

The main aim of the project is to design a Internet of Things based notice board which displays the message sent from the user Web application and to design a simple, easy and user friendly system, which can receive and display notice in a particular manner which will help the user to easily keep the track of notice board everyday.

So we proposed the project such that Admin can control the notice board through the web application. The messages that have been sent from the web app are stored in the database. The application also contains a speech to text converter. So that admin can send text messages through his/her own voice.

Admin has a selection option to use the notice board in different modes.

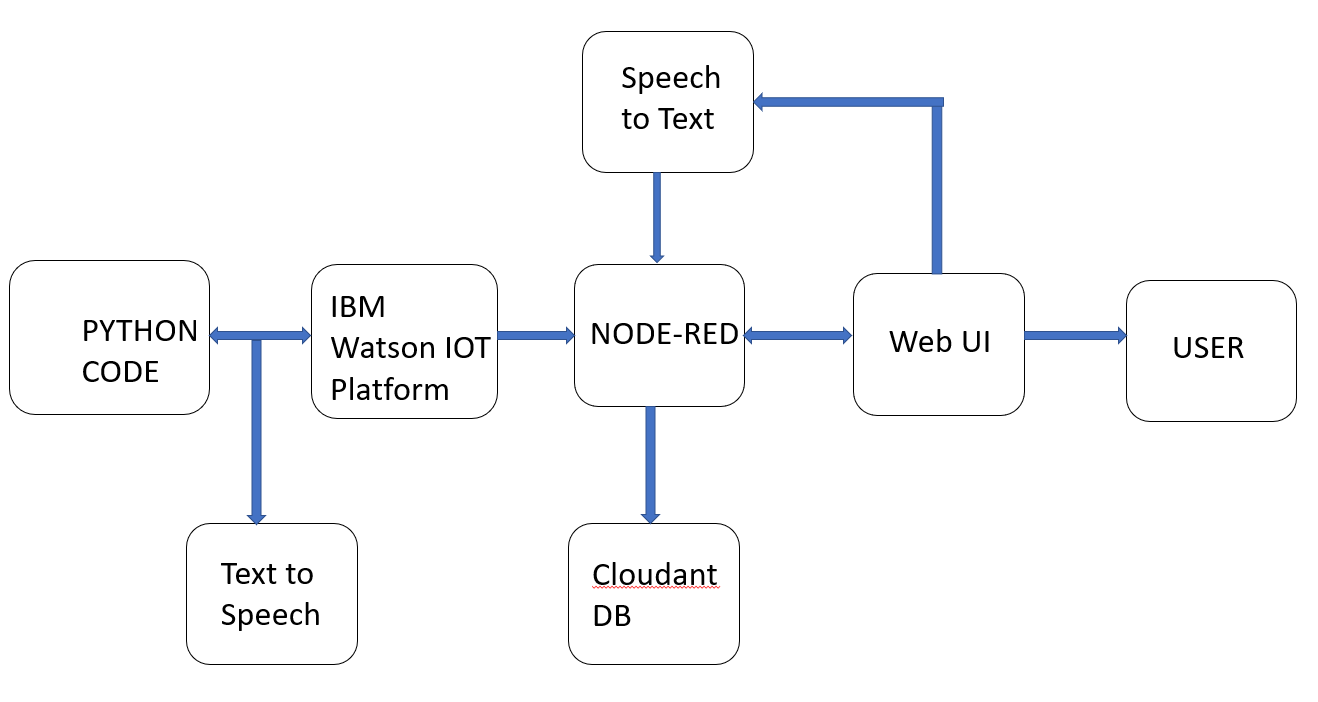
Quote mode - Displays the default quotations saved in the cloud

Notice mode - displays the notifications sent from the web app

Admin can change the notices from anywhere. whenever a new notie is displayed it will alert the people over there with voice commands.

**3.THEORETICAL ANALYSIS**

**3.1 Block Diagram:**



**3.2 Software Designing:**

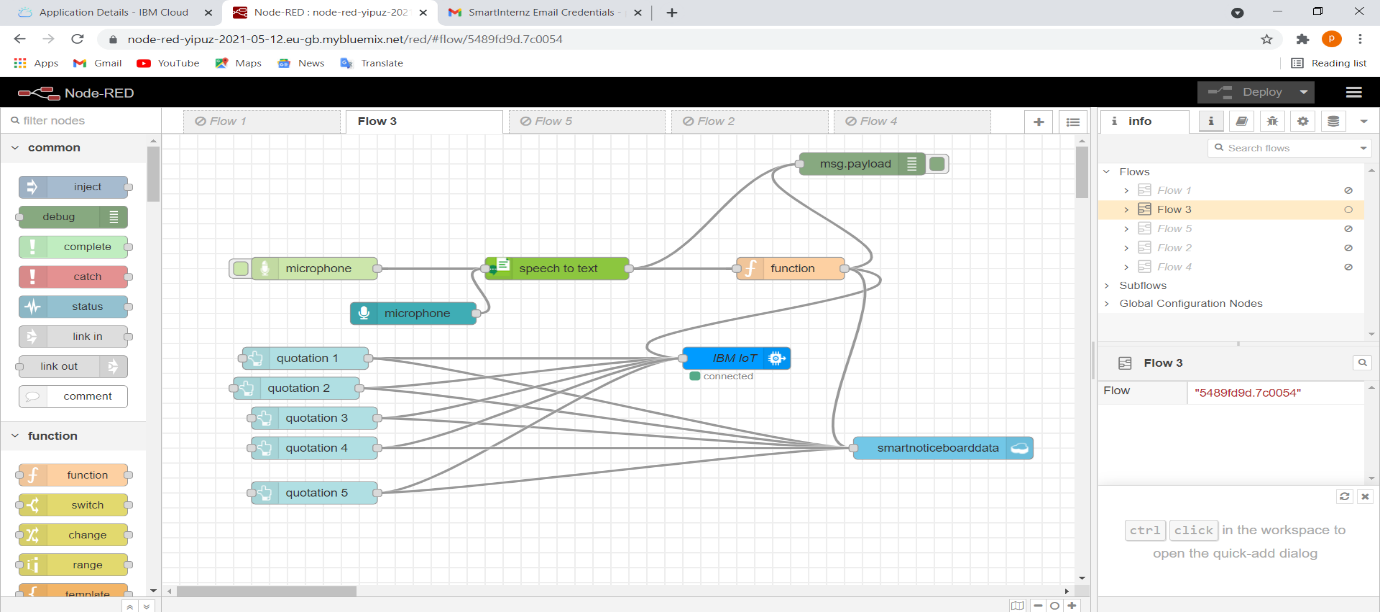
* Code for Text to Speech
* Code for IBM Watson Assistant

**Tools used:**

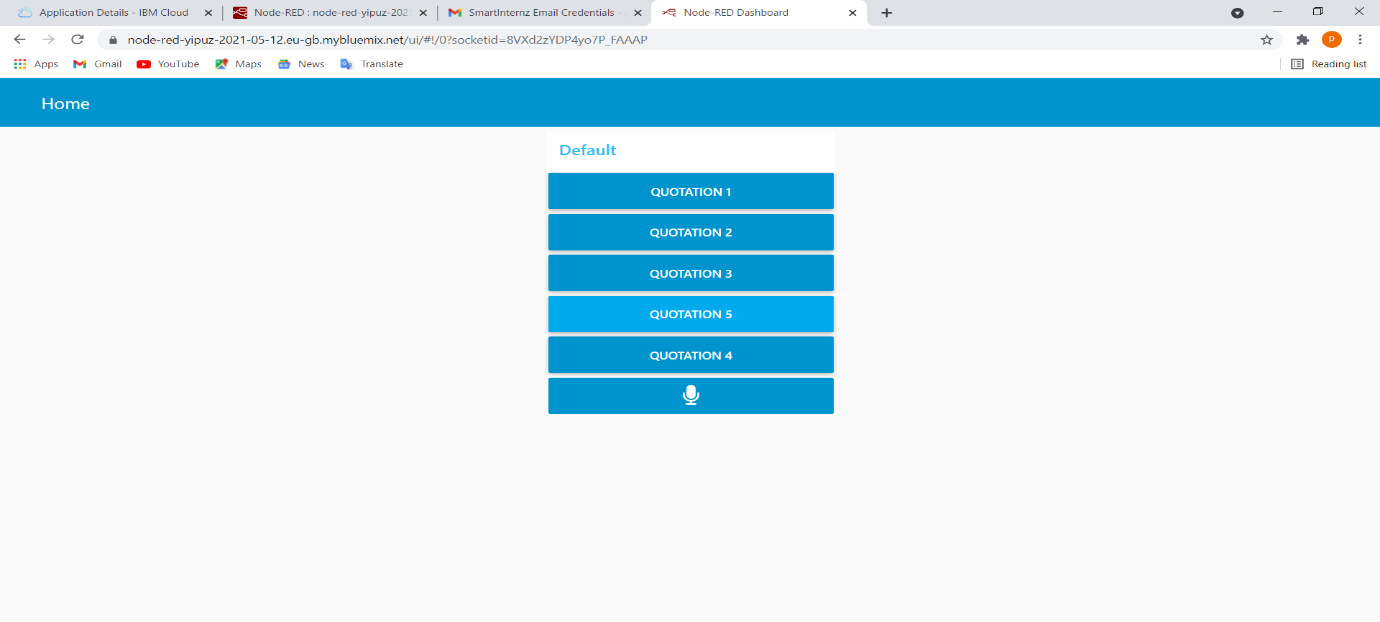
* NODE-RED
* IBM Watson
* Cloudant DB
* Python IDLE

**4. EXPERIMENTAL INVESTIGATIONS**

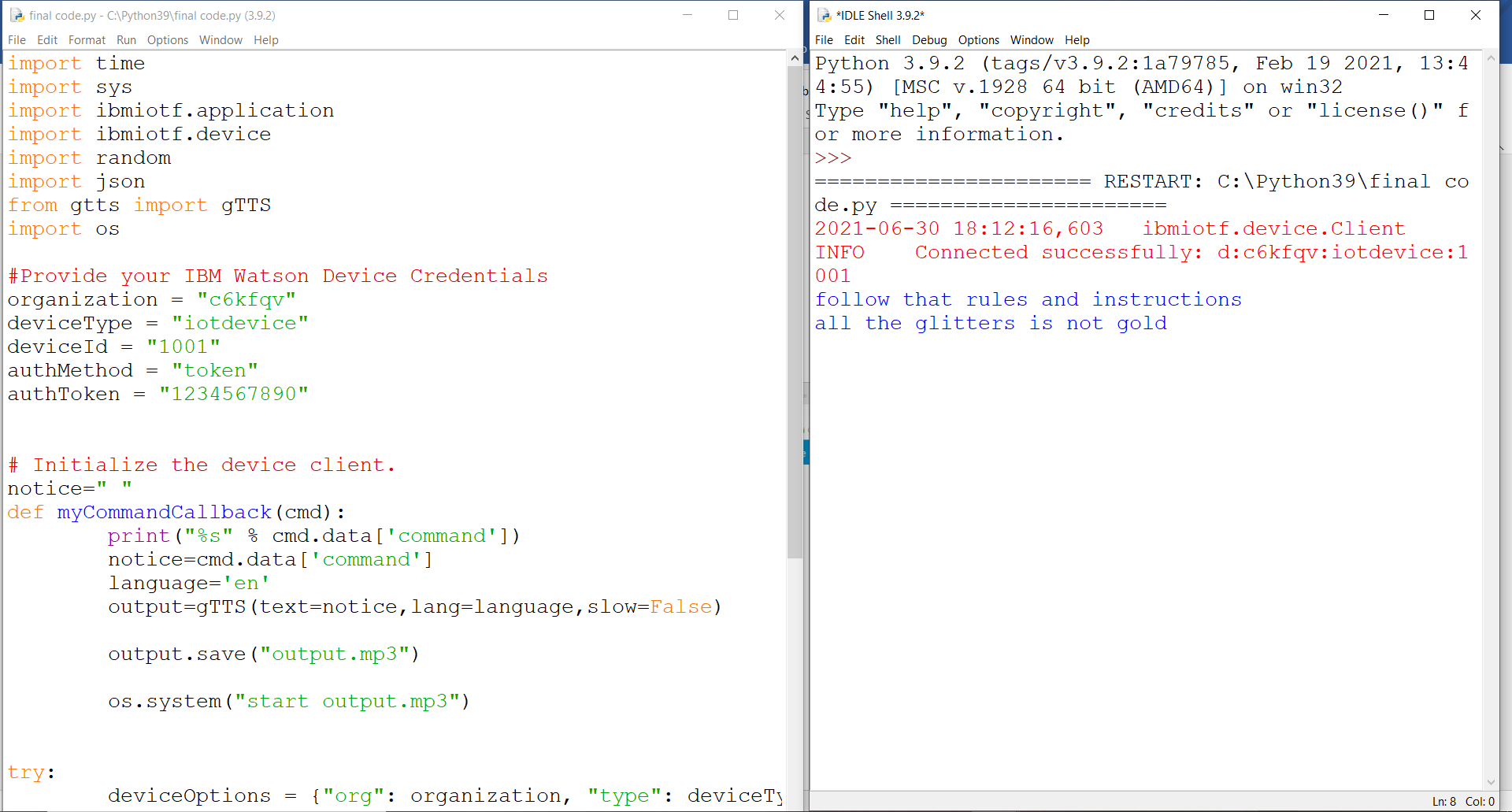
Initially we start our project by creating node connections in NODE-RED. In order to operate the smart notice board in quote mode we use the five different buttons and store five different quotations in each button. In order to connect it to ibm iot we connect five quotation buttons to ibm iot node. And in order to operate in notice mode we use speech to text node to give speech command and to give input we use microphone and give it to input to the speech to text node. The output of speech to text node is connected to function node and return the text to ibm iot node. And also store the output into cloudant out node.



The second step is creation of WEB application. By copying url of node-red and add ui to the url for creation of web app. We create the web app in order to give the commands to the notice board.

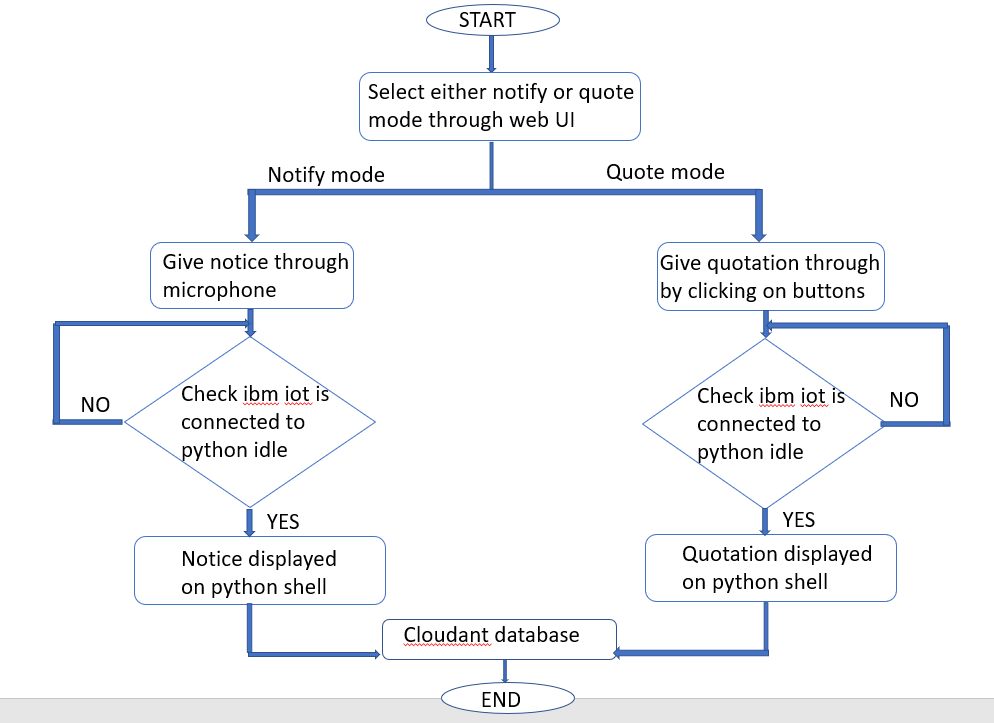


The next step is to write the python code to integrate it with node-red through ibm Watson. For integration we have to use ibm Watson credentials in python code. And we have to integrate ibm Watson code with the text to speech code in order to get the voice out command. If we integrate both the codes then we get the command from web ui and displayed on python shell and voice out command will also get.



And in final step we have to create the new database in cloudant. As we already use the cloudant out node in node-red and store the output, so the commands also stored in cloudant database.

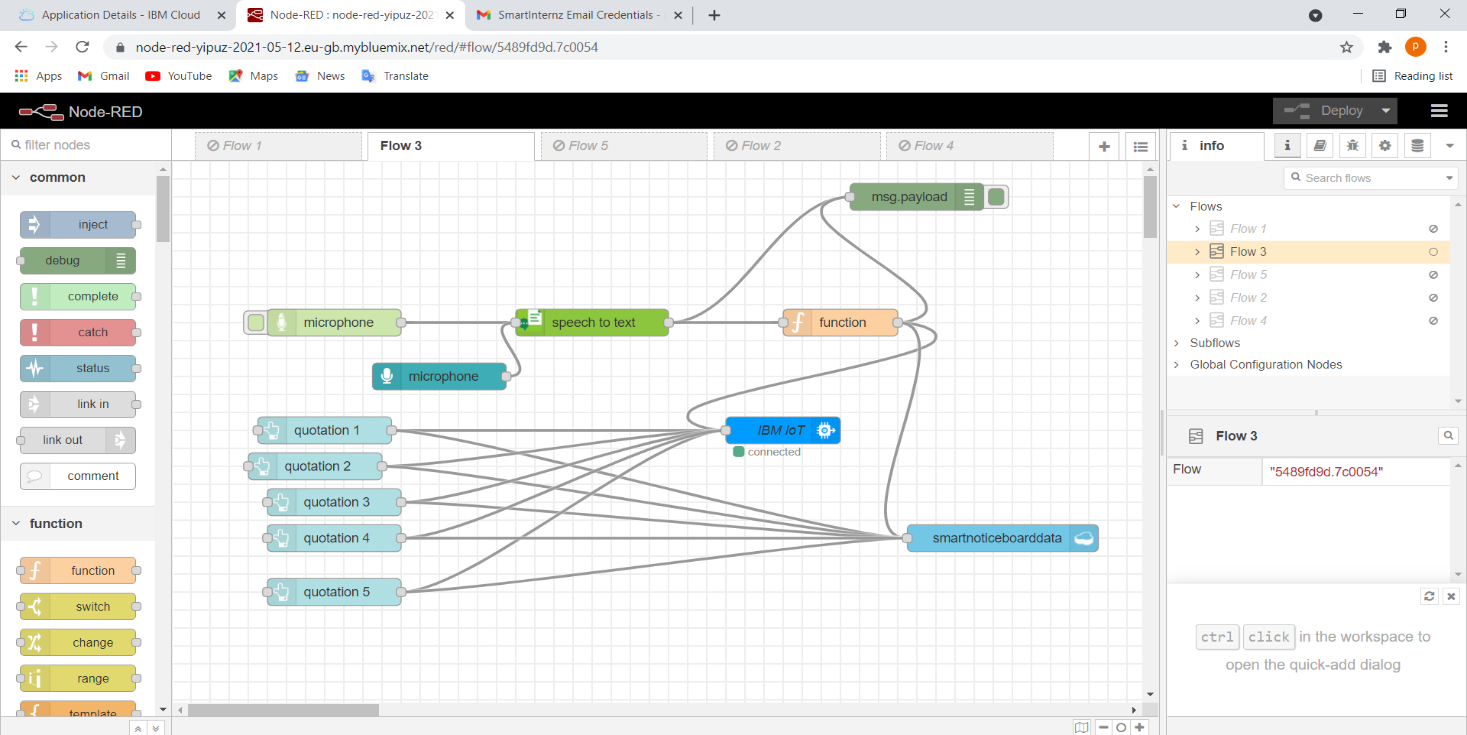
**5.FLOW CHART**



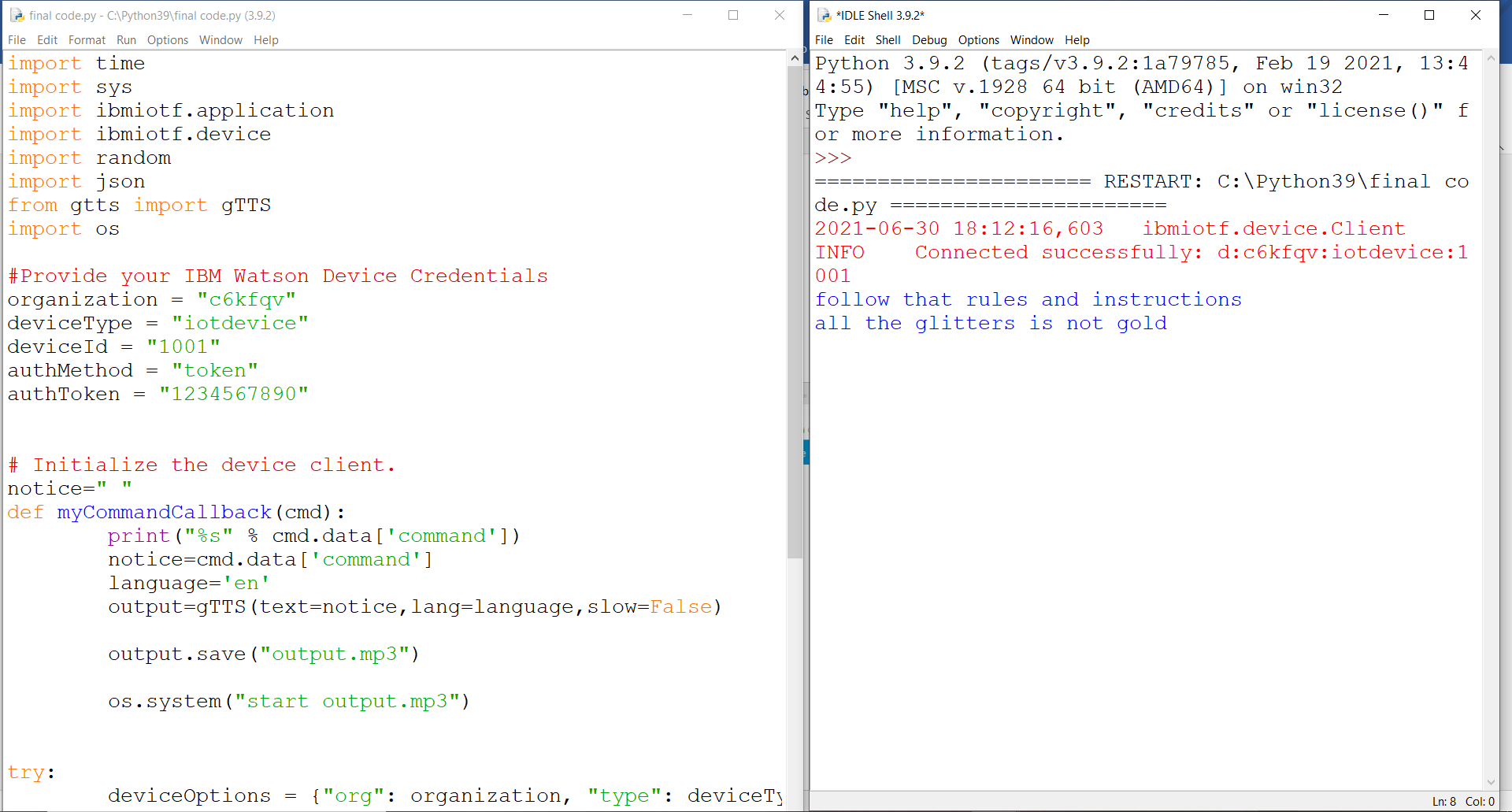
**6.RESULT**

The Result for smart notice board can be obtained by connecting NODE-RED with python idle through IBM Watson. The Web app of node-red is used to give commands to python shell. The python shell take the commands from node-red and display them and corresponding voice out command are also obtained. The commands that displayed on python shell are also stored in cloudant database.

**NODE-RED:**



**PYTHON SHELL OUTPUT:**



**7.ADVANTAGES &DISADVANTAGES**

**ADVANTAGES:**

* This wastes a lot of resources like paper, printer ink, man power and also brings about loss of time. And also a separate person is required to take care of this notices display.
* It is very easy to operate and consume less power.
* The circuit of the wireless notice board is portable.
* No printing and photocopying costs thus saves time, energy.

**DISADVANTAGES:**

* Whenever there are errors, debugging is difficult.
* When we use hardware components to integrate the smart notice board, during power failures smart notice board doesn’t work.
* It needs the continuous internet connection to check the updates in the notices page and display it.

**8.APPLICATIONS**

* The Campus Display System is aimed at the colleges and universities for displaying day-to-day information continuously or at regular intervals during working hours. Display devices can be setup at various places in the campus.
* It can also be used at other public places like

Managing traffic

Advertisement conference hall

Bus/Railway station

Gardens

Hospitals and many other public utility places etc

**9.CONCLUSION**

With the day-to-day advancement in technology the Notice Boards are also evolving from a hand- written system to a digital display and further to a Wireless Display System. The paper reflects a Digital Notice Board System. By Using the concept of this technology in the field of wireless communication we can make our communication more efficient and faster, with the greater efficiency we can display the messages and with fewer errors and better efficiency. Time consumed and paper wastage is reduced. This method can be used very efficiently in establishments like High-tech restaurants, educational institutions, public transport places like railways, bus station, and airport and also at the roadside for traffic control and in emergency situations like hospitals, temples, etc…. its cost is low and very easy handling method. It fully avoids usage of papers in displaying of notices and the information update by every second.

**10.FUTURE SCOPE**

The implemented system can be used in shopping malls and bus stations for dynamic updating of notices/messages. Also scan copy of notices can be displayed using the proposed system. The voice feature can be added to this design for advertisement/announcement of notices in public places. Notices can be displayed in the form of word document, power point, video clips by uploading them directly. This can be done by using a suitable operating system, program files, drivers, players so as to make them more eye-catching. Such notices can be displayed by using a webpage and giving an access to authorised users. The best way is the use of an INTERNET. An IP address can be used to achieve this. The IP will enable the user to upload any notice and from anywhere in the world. Moreover cloud can be used to dump the past notices and keep record of them.

**11.BIBLIOGRAPHY**

* <https://www.electronicsforu.com/electronics-projects/sms-based-smart-notice-board>
* <https://www.ijert.org/iot-based-smart-notice-board>
* <https://how2electronics.com/iot-web-controlled-notice-board-esp8266/>

**12.APPENDIX**

**12.1 Source Code:**

import time

import sys

import ibmiotf.application

import ibmiotf.device

import random

import json

from gtts import gTTS

import os

#Provide your IBM Watson Device Credentials

organization = "c6kfqv"

deviceType = "iotdevice"

deviceId = "1001"

authMethod = "token"

authToken = "1234567890"

# Initialize the device client.

notice=" "

def myCommandCallback(cmd):

print("%s" % cmd.data['command'])

notice=cmd.data['command']

language='en'

output=gTTS(text=notice,lang=language,slow=False)

output.save("output.mp3")

os.system("start output.mp3")

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:

time.sleep(1)

deviceCli.commandCallback = myCommandCallback

time.sleep(5)

# Disconnect the device and application from the cloud

deviceCli.disconnect()

**12.2 UI Output Screenshot:**

In the below picture we can observe the web ui and python shell. The python shell get the commands like notice through microphone of web ui and quotations from buttons of web ui and that commands are displayed on python shell whenever both the web ui and python shell connected to ibm Watson.

