

Voice-To-Text Recognition in Notepad Using IOT in Classrooms

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Abstract- Voice-to-text recognition has become one of the important roles especially in classrooms. Voice-to-text is a kind of speech recognition program that converts spoken into written language. But it has been not used for the classrooms. They are mostly concentrated on hearing aids people, understanding of advanced English. This concept is used for students who took their notes .Every day and failed to listen the concepts clearly, so the notes will be generated automatically on their own laptops when the staff dictates their notes and they automatically saves in the notepad.

Index Terms- voice to text, classrooms, staff dictator, laptop, student.

I. INTRODUCTION

Speech recognition is an inter-disciplinary of computational linguistics that develops methodologies and technologies that enables the recognition and translation of spoken language into text by computers. It is also known as "automatic speech recognition" (ASR), "computer speech recognition", or just "speech to text" (STT). It incorporates knowledge and research in the electrical engineering linguistics and computer science fields. Some speech recognition systems require "enrolment" (also called "training") where an individual speaker reads isolated vocabulary or text into the system. The system analyzes the person's specific voice and uses it to fine-tune the recognition of that person's speech, resulting in increased accuracy.

II.INTERNET OF THINGS

The INTERNET OF THINGS (IOT) is the network of physical devices, home appliances, and other embedded with software, electronics, actuators, sensors and connectivity that enables objects to

exchange data. The figure of online capable devices increased 31% from 2016 to 8.4 billion in 2017. Expert's estimate that INTERNET OF THINGS (IOT) will consists of 30 billion objects and also users by 2020. It is also estimated that market global will reach \$7.1 trillion by 2020. IOT is augmented with sensors and actuators. It holds technologies like cyber-physical systems, smart grids, virtual power plants, smart cities. This project mainly focuses with IOT where the voice signals can be passed to the TTL TO USB convertor and they convert into text. IoT plays an major role in this voice-to-text recognition.

III.RELATED WORK

This project mainly focuses on different methodology of learning process in classrooms. The student has to open their laptops with the node-red software. Each staff has an different colour codes and they has to send their voice through AMR VOICE Application. Along with the NODE-RED software the student uses the TTL TO USB CONVERTOR where the jumper wire has been attached. The voice signals will be converted into text by turning on their respective colleges WIFI by both the parties

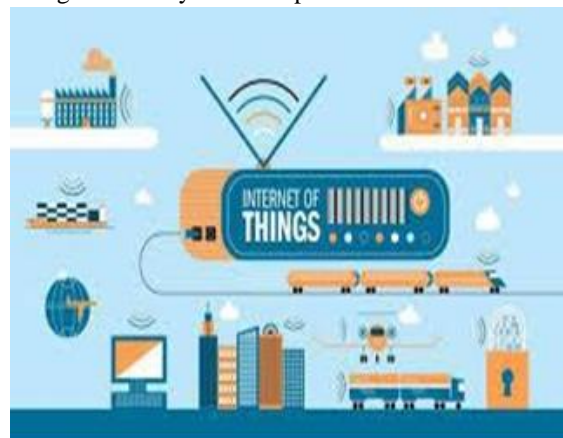


Fig 1. Internet of Things

The lecturer should turn on their Bluetooth in order to get connectivity with the HC-05(TTL TO USB CONVERTOR).The lecturer should mention their colour code .The file will be allotted and they have to dictate the notes and those notes will be converted into text and saves automatically in notepad.

IV.SOFTWARE

Node-RED is a flow-based development tool developed originally by IBM for wiring together hardware devices, APIs and online services as part of the Internet of Things. Node-RED provides a browser-based flow editor, which can be used to create JavaScript functions. Elements of applications can be saved or shared for re-use. The runtime is built on Node.js. The flows created in Node-RED are stored using JSON. Since version 0.14 MQTT nodes can make properly configured TLS connections Node-RED is a programming tool for wiring together hardware devices, APIs and online services in new and interesting ways. It provides a browser-based editor that makes it easy to wire together flows using the wide range of nodes in the palette that can be deployed to its runtime in a single-click.

V.CONNECTIVITY

Node red software can be accessed through the command prompt. There are some connectivity in Node-red.

Time stamp:

The Inject node can initiate a flow with a specific payload value. The default payload is a timestamp of the current time in millisecs.

Payload:

The configured payload of the message.

Topic:

An optional property that can be configured in the node.

Delay:

Sets the delay, in milliseconds, to be applied to the message. This option only applies if the node is configured to allow the message to override the configured default delay interval.

Reset:

If the received message has this property set to any value, all outstanding messages held by the node are cleared without being sent.

Delay 1s:

When configured to delay messages, the delay interval can be a fixed value, a random value within a range or dynamically set for each message.

When configured to rate limit messages, their delivery is spread across the configured time period. The status shows the number of messages currently in the queue. It can optionally disc. The subscription topic can include MQTT wildcards, + for one level, # for multiple levels.

This node requires a connection to a MQTT broker to be configured. This is configured by clicking the pencil icon.

Several MQTT nodes (in or out) can share the same broker connection if required and intermediate messages as they arrive.

Payload: a string unless detected as a binary buffer.

Topic: the MQTT topic, uses / as a heirarchy separator.

Qos:0, fire and forget - 1, at least once - 2, once and once only.

Retain: true indicates the message was retained and may be old.

Inject:

Injects a message into a flow either manually or at regular intervals. The message payload can be a variety of types, including strings, JavaScript objects or the current time

Payload:The configured payload of the message.

Topic:

An optional property that can be configured in the node.

Com 6:

Reads data from a local serial port.

Can either

- wait for a "split" character (default \n). Also accepts hex notation (0x0d).

- Wait for a timeout in milliseconds from the first character received
- Wait to fill a fixed sized buffer

It then outputs `msg.payload` as either a UTF8 ascii string or a binary Buffer object.

If no split character is specified, or a timeout or buffer size of 0, then a stream of single characters is sent - again either as ascii chars or size 1 binary buffers.

Retain:

Set to true to retain the message on the broker.

Default false.

String: Will display a non-editable text field on the user interface.

Each received `msg.payload` will update the text based on the provided Value Format.

The Value Format field can be used to change the displayed format and can contain valid HTML and Angular filters.

Path creation:

Reads the contents of a file as either a string or binary buffer.

Message:

Will display a non-editable text field on the user interface.

Http:

Creates an HTTP end-point for creating web services.

Outputs

Payload For a GET request , contains an object of any query string parameters. Otherwise, contains the body of the HTTP request.

Req

An HTTP request object. This object contains multiple properties that provide information about the request.

VI.TOOLS

Node-RED is a flow-based development tool developed originally by IBM for wiring together hardware devices, APIs and online services as part of the Internet of Things.

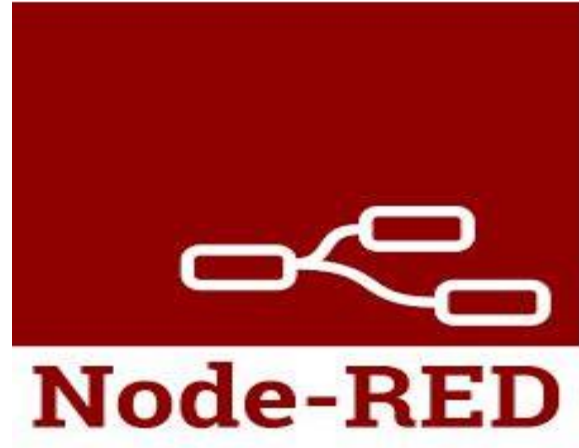


Fig 2. Node-Red Software

AMR Voice Application.

AdaptiveMulti-Rate(AMR)voicecode is an audio compression format optimized for speech coding. Many modern mobile telephone handsets can store short audio recordings in the AMR format.



Fig 3. AMR Voice App

VII. INPUT

Type the local host link which was related to the node red and dashboard will be opened. The staff should tell their colour code name with the command "open file colour code". Turn on the AMR app connect-robot and Bluetooth, hotspot. The file will be ready then the voice will be converted into text and it will be automatically saves in a notepad with the colour code.

For example:

The inputs and functions must be given an connection. Injecting the string and delay time and the path creation.

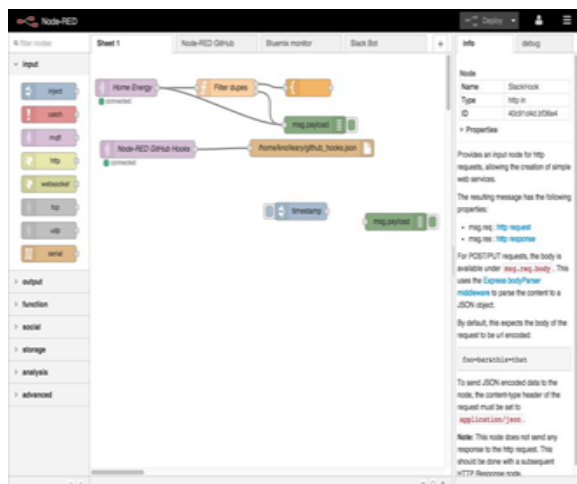


Fig 4. Voice Connectivity

VIII.FUTURE WORK

Our future work is to increase the minutes of printing the paragraphs and develop the cross-language retrieval much better. The file should be identified with the voice recognition which should follow the pattern matching. The references where the staffs have referred must be printed automatically after the notes.

XI. CONCLUSION

This concludes the contributions to the voice-to-text recognition system for students taking notes with waste of time to overcome drawbacks, this project aims to fulfill the students and more concentrate on listening class and they more interactive with the lecturers and asking doubts. Each lecturer has certain colors of code to be activated their apps in mobile phones or laptops.

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