"VIRTUAL TEACHER"

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ABSTRACT

Project name is "Virtual Teacher" means a App which will teach the students itself. Student will not require a private tuition teacher. It will be helpful for Students who want to learn & Study from Mobile Apps. It will teach student and make the student to learn by repeating the Question & Answer and can have Additional Parental Control which will produce a report of Student. It's not like teaching platforms like Educational websites, Google Meet, etc. It's a Artificial Intelligence program which will automatically teach students.

Keywords: Flutter - Machine Learning Kits- Learning - Test – Report.

I.   INTRODUCTION

The time has come for AI-made teaching bots to help and provide a facility and simplicity for a human teacher's workload & teacher availability in the time of online learning. The rapid increase in online education & E-Learning has allowed the teaching technology in an artificial one. This research paper explores the phenomena of the rapid outcome of the use of AI in teaching and learning in education. It put a look over the educational implications of new upcoming technologies which students can also learn easily.

This application will help students to memorize the required data. This AI-based application will dictate the questions and its answers multiple times in order to student to memorize it by listening it. After this process, the students will be required to speak the answer and system will judge how much student has learnt.

Hence, this app will be beneficial in improving the learning capacity of the students and can replace the tutors to some extent.

It is a learning Mobile Application for students where the App will make the student to learn itself and then take the test from the student. It is based on Machine Learning. This Application is created or developed by Flutter.

Today parents are too busy in their Jobs/Business as a result then are not able to give enough time for their children. This Application can be benefitial for almost every type of Students. Without extra Tutor & extra expenditure student may study at home. Additional Graphical, Audio Files & Virtual Assistance will increase Students efficiency. It can also be very useful for Blind people as learning goes with Audio files & Virtual Assistance with speech. Students can grow there confidence by speaking and communicating with the our Virtual Teacher.

Helpful for:-

- Blind Students
- Parents
- Students

Flutter

Flutter which created by Google, is an open-source , powerful UI software development kit[1]. It is used to develop applications for Google Fuchsia, Android, iOS, Linux, Mac, Windows from 1 codebase. Flutter uses a widgets (widgets trees) to develop a fully functioning application. Flutter is having a huge Widget Library. This Figure explaining how the Flutter work's internally
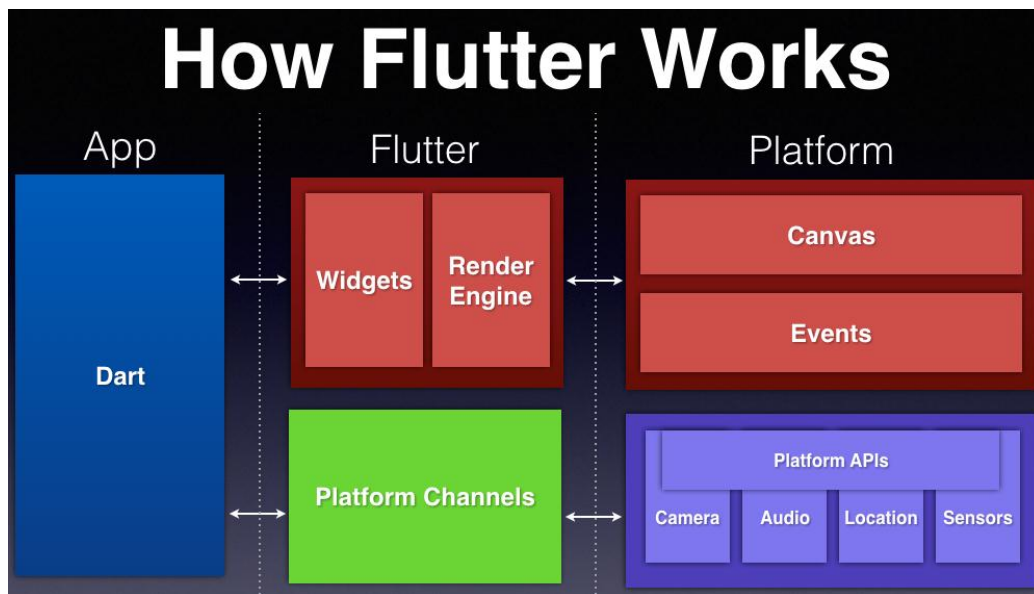
(Fig 1).

Fig 1 Explaining how the Flutter work's internally

Dart

Flutter apps are coded in the Dart .

On the OS such as Windows, mac and Linux, Flutter runs in the Dart virtual machine, which features a Just In Time(JIT) execution engine. While writing and debugging an app, Flutter uses Just In Time compilation which makes flutter allowing for "hot reload", with which all the modifications made in the source files can be injected into a running application.

Release versions of Flutter apps are compiled with Ahead of time (AOT) compilation & Executing on both Android and iOS and making the Flutter's high performance on mobile devices as much as possible
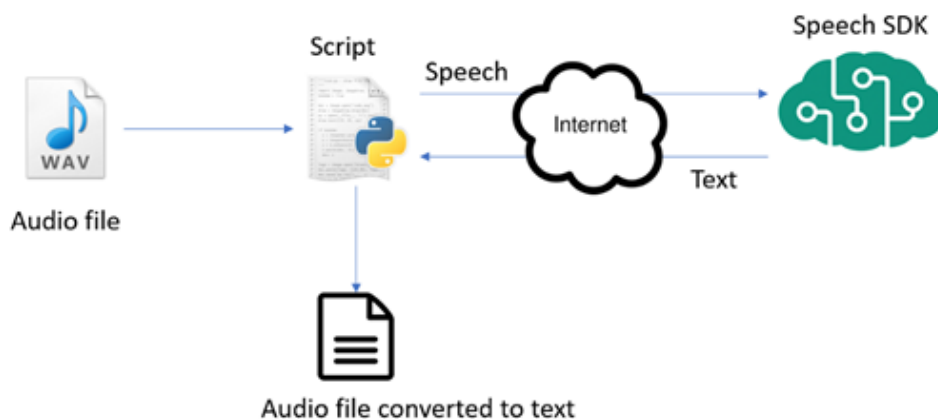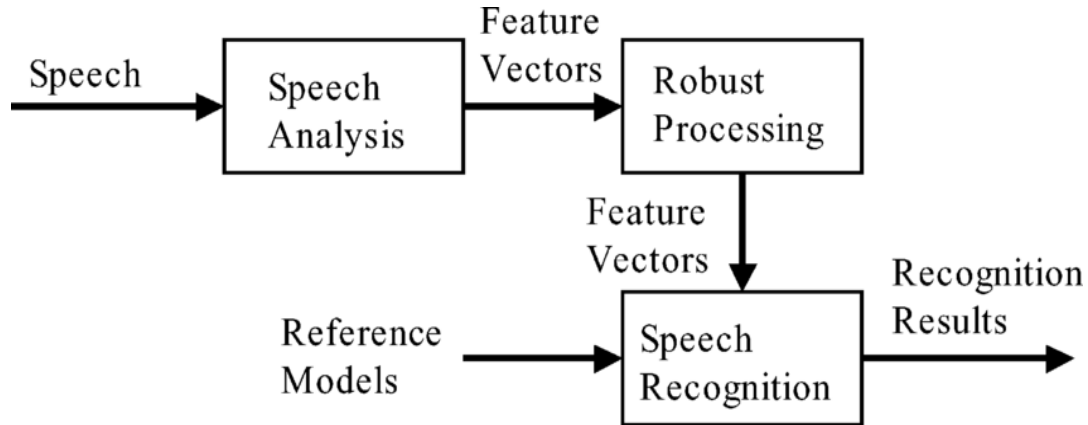
Speech to text

Fig 2. Architecture of Speech to Text Algorithm.

Speech to text means converting the Speech which we generally speak will be converted to text which we can store it and be seen written in our electronic device. In project we are using speech_to_text library to convert speech into text.(Fig 2)

Text to Speech

Text to Speech means converting the Text which we generally see in the electronic device into speech which we can listen as a mp3 file. In project we are using flutter_tts library to convert Text into Speech. (Fig 3). Hidden Markov Model is a statistical Markov model where the system being modeled is taken to be a process which is named as Markov with unobservable ("*hidden*") states. Hidden Markov Model assumes that there is another process whose behavior "depends" on . The goal is to learn about by observing .

HMM stipulates that, for each time instance on

Fig 3. Text to Speech Algorithm

II. METHODOLOGY

The app will show the content for the student according to his area of interest and age. Saved Audio & Graphical Files will be started to make him learn. It will be repeated until user learns or user may start the test which means he has learned the topic. The App will take oral test & at the same time our background process of converting Speech to Text will be done. Like a real Human it will ask the question &demand for the right answer. Now we have answer in text format which we can check is it wrong or right and respectively result will be shown. According to result user can choose to go to next question or retry the same question. If he wants to go on next then we will again reach to Content List which was the First page of the App otherwise the older question's file will again get Started.

Our app is being created in Flutter using Language "Dart". We have taken support of some 3rd party Libraries like speech_to_text and flutter_tts build for Flutter itself.

Step-1

Login Page

It will be the first Page of the Application where we need to enter the Credentials.

There is a Email & Password Textbox with a Login Button.

Step-2

There is a drawer which is having "Learning" , "Test" , "Setting", "Profile" Pages Navigation. It will help us to switch the pages.

List of Questions will be displayed then Student will choose the Question and then following question & answer will be displayed.

Step-3

Learning Page

That question will be displayed with the answer and there will be a button of start audio. After clicking on the button, the **Text to Speech** process will start and it will be continued uptill the student press for the next question.

Step-4

Test Page

When student had completed the learning process of some Questions then there will be a test where the App will only ask the question and ask for the correct answer. Then the student will speak the answer and then the Speech To Text process take place.

Step-5

Then the converted text will be matched with the Correct Answer .It the answer is correct then we can go further to the next Questions or if score is low then we can go back to the **Step-3.** There will not be 100% accuracy of Speech To Text Converter and the library which we used is assumed to give 80% accuracy. We will give the answer correct if the String matches 80% of the correct Answer.

Step-6

After all the Learning & Test procedure we will generate the report of the student which will be able to tell the Parents/Guardian about the score and the weak portion of the student can also be known.
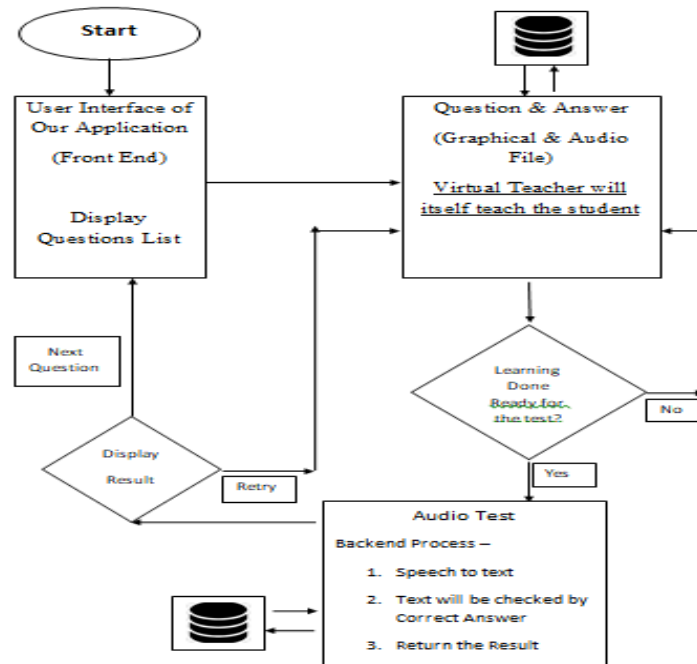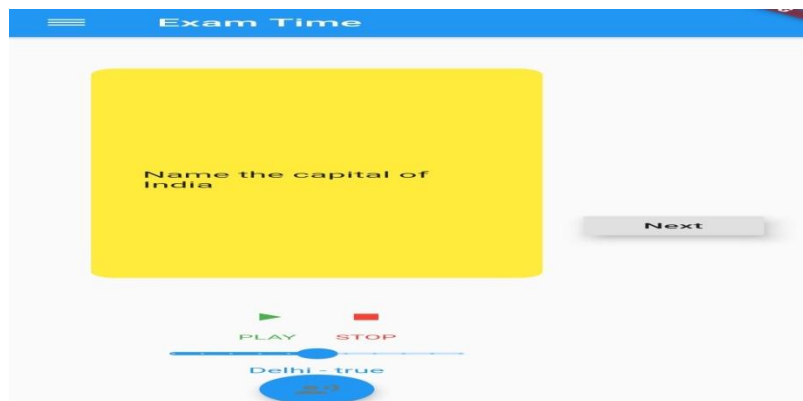

Fig 4. Flow Chart

III.   RESULT

We have successful development of our application. We tested some set of Questions & Answer which were uploaded on Firebase. Our Application perfectly worked on the given set of Question and Answers. Our Application was able to hear our voice Answer's and able to convert it into text and was able to successfully compare both the answers which was provided in the firebase database and spoken data(real time data).

This is the screenshot of our App where question is asked Name the capital of India(From our Data Base) and the Answer told (here User is speaking he answer and our App is listening) by user is Delhi .

Now our App will check the answer from our Database which is Delhi.

Now we will check the answer which is told by user .

In this case it is incorrect that's why **True** status is being showed.

This is the screenshot of our App where question is asked Name the capital of India(From our Data Base) and the Answer told (here User is speaking he answer and our App is listening) by user is Mumbai.

Now our App will check the answer from our Database which is Delhi.

Now we will check the answer which is told by user .

In this case it is incorrect that's why **False** status is being showed.

IV.   CONCLUSION

Virtual Teacher Mobile Application is a useful app for the student who is learning anything. App will teach the student in a customized way with Graphical & Audio Files which makes the Study more interesting and efficient. One of the main application is that this App will make E Learning better with the help of Smart Phone and it will be available with us 24*7 hours.

Question used in Project

Question Asked	Answer Given	True/False(Correct Answer)
Where sun sets	East	True
Where sun sets	North	False
Smallest state of India	Goa	True

V.   REFERENCE

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