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A PROPOSED APPROACH FOR VOICE ASSISTANCE IN EDUCATIONAL INSTITUTION

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Abstract- In the Modern Era of fast moving technology humans developed applications like Personal Voice Assistant having the ability to interact with the surroundings by human interaction i.e. HUMAN VOICE. Web Engineering has become a major delivery platform for a variety of complex and sophisticated enterprise applications in several domains. Education gives us knowledge of the world around us and changes it into something better and also develops in us a perspective of looking at life so we had set the scope to Institute level. So we are going to develop a Web Engineering application for the Education domain wherein it will be used by the role of Professors and students. In this proposed system, the Professor's voice assistant would be able to set and extend timelines of assignments or any schedule exam. Professors can also set their respective lectures timetable so that they can get reminders whenever the lecture is scheduled. At the Institute level it will be integrated with the features like students curricular tracking which will help the professors to analysis and track their curriculum growth. The students can set alerts for their exams or for any required notes, view the Timetable from a web page and extract the details related to Exams or any respective Subject using voice Recognition by using the ASP.Net Framework and AI. The Principal of Institute or any Higher Authority person can View the details of Professors via Voice Commands. We train the module to accept the voice commands and perform the functions accordingly by enhancing some features introduced by Cortana.

Index Terms- Pattern Recognition, Knowledge Base, Natural Language Processing (NLP), WEB API.

I.INTRODUCTION

As technology evolves every day, humans developed applications like personal voice assistance in order to minimize the work. By using just a voice command you can get things done. But personal voice assistants like Google Assistant, Cortana, Amazon Alexa, Siri which are already present at market have limited scope. It's just for your personal use taking an account that we decided to make a voice assistant which has scope to the Institutional level by taking domain as web engineering.

A voice assistant is a digital assistant that uses voice recognition, language processing algorithms, and voice synthesis to listen to specific voice commands and return relevant information or perform specific functions as requested by the user.

The utility of voice-enabled technology has promising prospects to enable students with tools to ensure a smooth sail through their higher education, with completion of projects, expansion of their technical skills and making them more industry-ready. A testament to this would be the students of Arizona State University, who used voice-enabled technology to develop an app that allows learners with Down syndrome to access voice-guided relaxation techniques and practices, to hear words of encouragement and reassurance spoken by their caregivers, and to

pose questions.

In these pandemic situations almost all industries get affected taking an account of the in educational industry now-a-days everything has been done online only. Mostly we use google classroom for all of that. For all of our teachers over there it is a tedious task to set timetable, give alerts for everything manually .So we also try to overcome these things by including some features in our web app like:

1. Professors can set their respective lecture timetables so that they can get reminders whenever the lecture is scheduled.
2. They can set and extend the timelines for assignments and even can schedule exams.
3. They can track the individual's curricular growth of every student.

Coming to the features included for students are:

1. They can set reminders for lectures and even for assignments and exams.
2. They can extract details like syllabus, exam time table and even question paper of previous year.

II. RELATED WORK

Table1. Literature Survey

Sr. No	Title of the project	Author & Year of Publication	Observation and remarks
[1]	Desktop Voice Assistant With Speech Recognition Intelligence (DVAbot)	International Journal for Research in Engineering Application & Management (IJREAM), Aditya Tyagi, Harshi Singhal, Mradul Jain (2020)	This paper describes desktop voice assistants which will automate the tasks that are performed on desktop.
[2]	Donna - A web	International	It is an artificial

	based AI Personal Assistant	Journal of Computer Applications, A mi Doshi, Ria Shah(2017)	intelligence based personal assistant that can be used by the simplest of individuals to get their daily tasks and upcoming schedules fixed according to their own convenience.
[3]	Voice Assistant Application for a college Website.	International Journal of Recent Technology and Engineering (IJRTE) Deny Nancy, Sumithra Praveen, Anushria Sai, M.Ganga, R.S. Abisree(2019)	This paper describes development of a web application where the voice assistant would be available for a college website. Websites providing all services are accessible by the end user on the user's voice commands.
[4]	Enhancing Cortana User Experience Using Machine Learning	Emad Elwany, Siamak Shakeri(2014)	The purpose of this project was to predict the queries that the existing Cortana system will not be able to handle with satisfactory results.
[5]	Development of a Virtual Teaching Assistant System Applying Agile Methodology	Texas A&M International University, Dr. Pablo Biswas, Dr. Runchang Lin(2012)	This paper is about a web-based Virtual Teaching Assistant System for college students and instructors where the evolution takes place through the Agile principle..

III. PROPOSED SYSTEM

[A] User Interface: User interface module will be used by both Professor and students. User interface module will help to interact with Students and Professors vice versa. This module will contain all designing of web applications containing all views of activities like schedule exam, Complete training etc. In this module we are going to use asp.net MVC with HTML and CSS.

[B] Speech Recognition Module: As the name suggests this module will help in recognizing the voice of the user. We will use windows speech recognition library to recognize speech. Speech recognition libraries will recognize commands given by use and will convert them into text. As per voice we will also recommend various commands.

[C] Pattern recognition: It is the process of recognizing patterns by using machine learning algorithms. Pattern recognition can be defined as the classification of data based on knowledge already gained or on statistical information extracted from patterns and/or their representation. One of the important aspects of the pattern recognition is its application potential.

[D] Training Module: Training module will contain sets of commands for various activities. The training module will contain SQL databases from which application will get the best recommendation for users. For every voice command there will be a training set. As commands increase, the training module will expand further and will help users to do certain activities easily. Training module will directly be connected to our application.

[E] Database Module: Database module will contain a database of applications alongside training databases. Database will be in SQL server. Application will fetch data for various activities. Training module will also get training sets from the training database. Depending on the domain and data characteristics, different types of combinations might produce dissimilar outputs. The following list describes several hybridization techniques that come into consideration to merge CF and CBF recommenders.

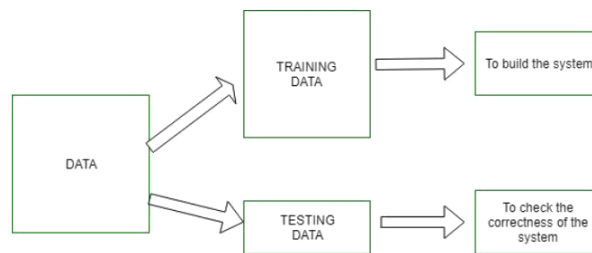


FIG.1 PATTERN RECOGNITION

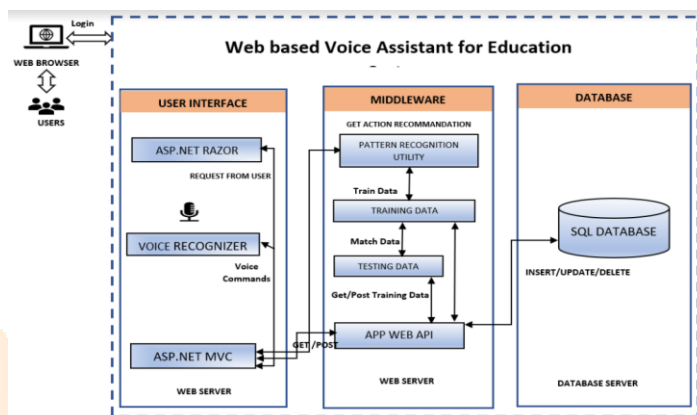


FIG.2 ARCHITECTURE DIAGRAM

Dataset	Users	Items	Interactions	Type
Command Dataset	156	45	670	Patterned Information
Trained AI Dataset	245	67	1460	AI Commands
Web Manipulation	567	78	5573	Information

TABLE.2 SAMPLE DATASET USED

Operating System	Windows 10
Programming Language	C#(MVC),.net
Database	SQL Server

TABLE.3 HARDWARE REQUIREMENTS

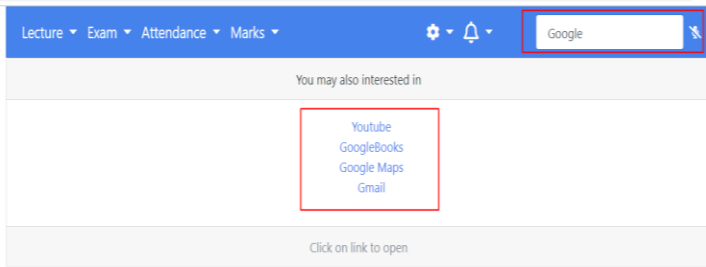
Processor	2.3 GHz Intel
HDD	200 GB
RAM	4 GB

TABLE.4 SOFTWARE REQUIREMENTS

IV. RESULT ANALYSIS

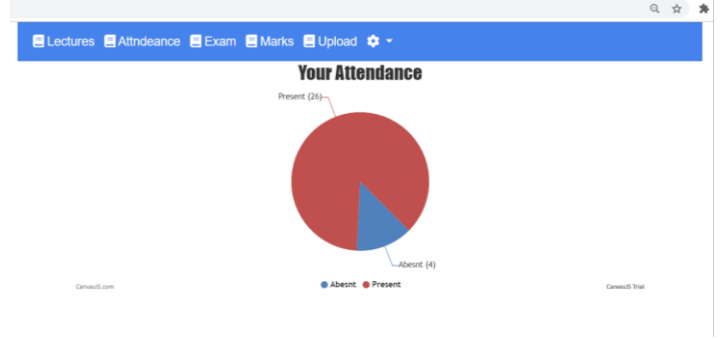
[1] Voice Suggestions

A web based voice assistant is designed to simulate a conversation with a professor/student via auditory methods. It is designed for engaging users and machines to simplify tasks. Here the voice command displays various suggestions for a given input.



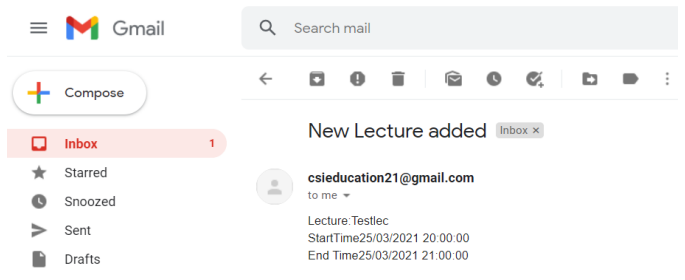
[2] Attendance Progress

For an individual student, their attendance is analysed for a particular subject. The visualization is presented in a statistical graph. It shows the proportion of both present and absent remarks based on monthly reports.



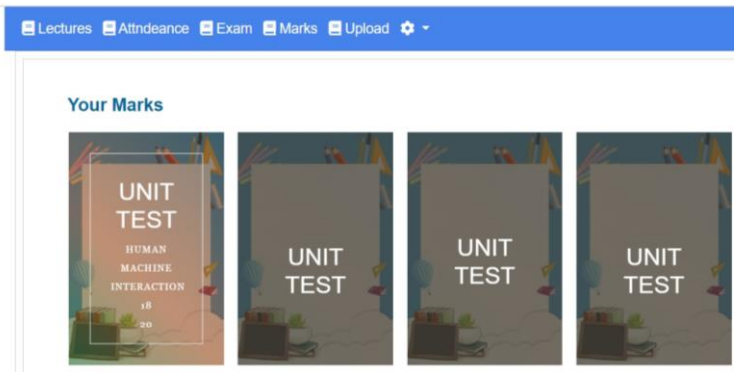
[3] Email Reminder

For every lecture that is scheduled, an email is automatically generated and sent to the students. The reminder of the lecture contains information providing details of the date, timing and name of the subject.



[4] Representation Of The Grades

The grades for individual subjects are noted down below. By voice recognition he/she can view their grades regarding a particular exam for example, in this case we have shown a unit test results. This approach makes it easier and convenient for the user to view their data.



V. CONCLUSION

In order to achieve smart assistant we have Voice Assistants using Natural Language Processing along with Artificial Intelligence. This program is designed to help Professors to track student data to get information available in the Database, scheduling for teachers as well as students and assign timer for professors. Web based Voice assistant provides hands-free experience to answer the quick queries and analyses curriculum growth of individual students.

VI. REFERENCES

- [1] "Desktop Voice Assistant With Speech Recognition Intelligence (DVAbot)", International Journal for Research in Engineering Application & Management (IJREAM), Aditya Tyagi, Harshi Singhal, Mradul Jain (2020)
- [2] "Donna - A web based AI Personal Assistant", International Journal of Computer Applications, Ami Doshi, Ria Shah (2017)
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- [4] "Enhancing Cortana User Experience Using Machine Learning", Emad Elwany, Siamak Shakeri (2014).
- [5] "Development of a Virtual Teaching Assistant System Applying Agile Methodology", Texas A&M International University, Dr. Pablo Biswas, Dr. Runchang Lin (2012).

