A Survey on the Use of Artificial Intelligence Technology and Google Tools for Multilingual Students Sitting and Studying in a Common Classroom

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Abstract— Communication methods and medium of our daily life has been changed by the new emerging Technologies. We can go back in our past and look how communication has got so easier over the years. We are using different types of communication tools with outstanding outputs that we could only imagine some years ago. To communicate with someone in society today, we have so many options present like we can do chat on social media websites, text them, email, or using the traditional approach with new features of calling to a person. Artificial Intelligence is the most popular and advanced technology which we are using now a days in every field of work. The Artificial Intelligence concept and features is used by most of the search engines, websites, smart phones, and websites and smart phone OS to improve their performance. The text to speech and Speech Recognition system made by Google is a very unique feature which helps every type of persons in making effective communication. In this paper we portray a problem statement on Artificial Intelligence Tools usage on a single Classroom of students where each of them are of different countries and admitted in a single course in a university and if any teacher delivers a lectures in his or her class in a single language.

Keywords- Search Engines, Artificial Intelligence, Text-to-Speech, Google Assistance, Natural Language Processing (NLP).

I.   INTRODUCTION

Learning as an Individual

Educational Institutions are now a day's adjusting themselves in a learning environment in which a single language like English is the communication medium for students of different geographical areas. But in this paper we are trying to create some convenience for the teacher who does not know the universally accepted language for teaching using Artificial Intelligence but even then he/she can communicate in his/her own communication language with a variety of students that will be converted to the student's country language. Many companies like Content Technologies and Carnegie Learning are involved in developing intelligent platforms that use AI to provide learning and teaching technologies. We use the AI feature of converting any language voice signal to any other voice signal according the country of the student who are listening the lecture of a teacher in a classroom by using any translating software like Google's Text-to-Speech. The idea of customizing curriculum for every student's needs is not viable today, but it will be for AI-powered machines.

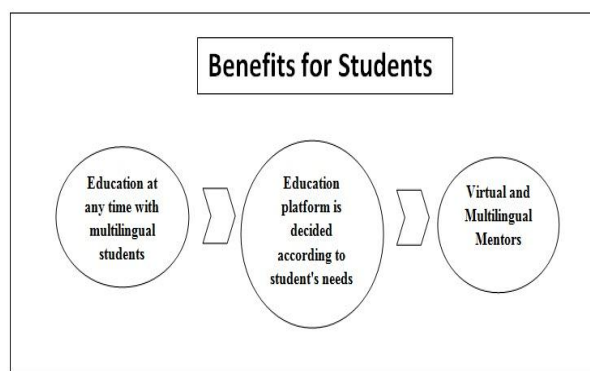We can gear-up every student by providing these AI-powered machines. [7]

Figure 1

Global Access and Unique Platform for Students

Using AI tools can help those who speak different languages or who might have some visual impairment. We have a plug-in named Presentation Translator for Microsoft PowerPoint that creates subtitles for what a teacher is saying in the class in real time. [3]

This paper is divided into six sections. Section I contains brief overview of the problem and its solutions approaches. Section II describes the background and history of AI. Section III discusses the scope of AI in India. Section IV shows the challenges in implementing the solution in the classrooms. Section V describes the feature of Google Assistance and its basic concept. Section VI gives the conclusion of the paper.

II. BACKGROUND

Artificial Intelligence is a concept and feature now a day to recognize, to understand, to memorize and to learn from experience. It can also be called a replica of human brain capabilities in the form of computer that can do those activities which a human brain can do in much less time by applying its intelligence and surroundings.

The recent applications areas of AI are politics, games, public life, and teaching. In Politics the AI helped us to save the energy and time to reach the right and targeted audience. The maximum mobile and computer games are now using AI features.

Google DeepMind developed an AI based machine "Alpha GO" which created history by defeating the Chinese ancient board game "GO".
Mobile Smartphone Keyboards now a days has very rich feature of AI by which the keyboard itself suggests the next available word which suitable for the written sentence
Online Shopping Portals now a day's suggest any user which product is best for their purchase according to their surfing experience.[2],[4]

India is lacking behind in the development of AI as compared to other countries like China and US. The Government policymakers in India are not noticing the emergence of AI applications in their policies and projects. To take the full advantage of AI, we must establish some regional innovation centers with government and private start-ups for developing automation and robotic instruments. [7],[8]

III. SCOPE OF AI IN INDIA

AI in India is a side product of globalization. Most of the data is provided by the servers are located outside of India. The Indian policymakers are not giving much importance to this but many companies like Amazon, Google and Microsoft are planning to invest in India in cloud infrastructures. The use of AI developments is focused only on products and services in India. Only the private companies in India are using the features AI to grow their business strategies. We have to make policies for AI innovation and adaption in government sectors and private

sectors to take full advantages of AI in most of the upcoming technologies. Our Government must provide cloud computing infrastructures capacity inside India. Our Prime Minister **Mr. Narendra Modi Ji** has started programs like Skill India and Digital India and to make a perfect success to these programs, the recent Innovations of AI perspective must not be ignored. Government may adopt the advancements of AI such as preventing misuse of Subsidy, detecting Income Tax Fraud etc.

IV. CHALLANGES IN IMPLEMENTING THIS CONCEPT IN CLASSROOM

Sustainable Development and Common Comprehensive view of public policy on Artificial Intelligence
We require multiple factors and institutions alignment to the advancement of complex technology conditions used in AI.

Extending the Education System with the inclusion of AI
Many countries are now a day's changing their work culture in Education System using the latest trending technologies. To implement the advanced AI tools and technologies it is necessary to first implement the basic technological infrastructure which is a basic need to use the AI.

Training the Faculties/ Professors to use the AI powered tools in the classroom
Faculties/Professors/Teachers will have to learn the new pedagogical way using new digital devices that are powered with AI and the types of example they are putting in front of multilingual students using the AI devices to explain the concepts
.
Quality based Inclusive Data Systems Development
The quality of data should be the chief concern if we are heading towards the datafication of education. To improve the data collection and systemization it is essential to develop the state capabilities. Today's Artificial Intelligence developments should be used to increase the importance of the data in Education System.

Availability of AI Gadgets in the Classroom for Students and Teachers for Effecting Communication
For running an effective and meaningful AI based session in the classroom we have to invest in the necessary or required AI devices for teachers as well as the students. So it creates an extra expense to set up the class in the institute.

Use and Dissemination when dealing with ethics and transparency in collection of data: AI regulation will require some discussion on ethics, security, transparency and accountability because Ai opens many ethical concerns regarding access to education system, individual

students recommendations concentration on personal data, liability, privacy and security of the data. [1]

V. GOOGLE ASSISTANCE AND NLP TO CONVERT ONE LANGUAGE TO OTHER

Google has launched its new concepts of multilingual communication with Google Assistance. Google Assistant is a virtual assistant software tool that can be accessed over the internet that helps us in searching our query online quickly on any device is basically an Artificial Intelligent assistance feature which was released in May 2018 by the Google CEO Mr. Sundar Pichai. It is designed in such a way that anyone can interact in his/her own communication language and accent. It does the Natural Language processing using the AI.

We can use this software tool to implement the multilingual classroom concept which will translate our communication voice to any spoken language and the class will go on smoothly for the students and the teachers. [5],[6],[9],[10]
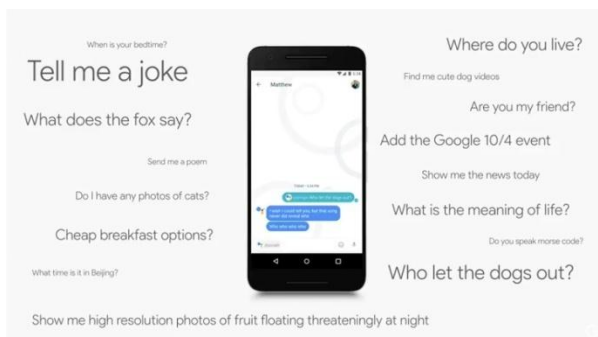

Figure 2

Currently we are using so many multilingual home appliances like Speakers, Air Conditioners, and Smart Phones using the Google Assistance feature which enables any user to ask queries to a smart internet device in its own language. It is not necessary to the user to change the language settings each and every time he or she has to interact with the device.

This was not a simple task or not a single day task for the Google to develop this feature. Google solved this problem by categorize the problem into three parts:

Identification of Different Languages according to region and the Countries:

When a person speaks any language then the other person who does not know the language the person is speaking, just pay some attention to the intonation, phonetic registry. Google started working in 2013 on spoken language identification technology known as LangID using deep neural networks. Today we successfully identify over 2000 other alternative language pairs using recurrent neural networks with the state-of-the art LangID models. To select

the best recognition hypothesis from two monolingual speech recognizer, a ranking algorithm is used. This model determines not only what language was being spoken but also what was said in the voice or text.
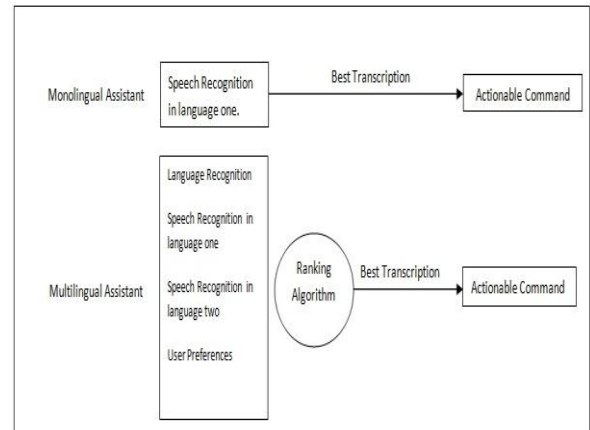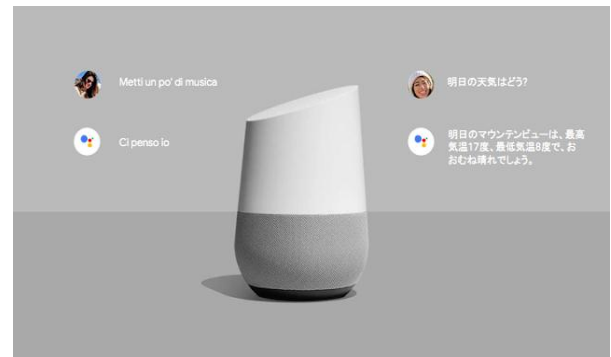

Figure 3

Figure 4

Optimizing Multilingual Recognition

To optimize the multilingual speech recognition, the system initially identifies that which language is being spoken better. If some certain language speech can be identified before the user finishes his / her question then it stops running the user's voice through the losing recognizer and discard the hypothesis of losing, this reduces the potential latency and the processing cost. In this way we can also find some other method for optimizing the system. Sometimes the user mixes its speech with the combination of two or more languages, for e.g. an Indian person who speaks can use Hindi and English both the terms in his or her speech. So in this situation the Google identifies the maximum number of spoken words is of which language and tries to identify the language of the user. This technique also improves the language recognition. One another method to improve the quality of the system was to limit the languages a user can select for query. To continue improve its technology Google hope to tackle trilingual support next to know that this will further improve the experience of growing user base.

Bilingual to Trilingual Support

Most of the families now a day's speaks either one or two languages. Like in Bengali or Punjabi family in India they can speak Hindi, English and their own native language. So Google is improving its services for multilingual support. this will make life a little easier for trilingual persons of the family who can speak two or three languages.

VI. CONCLUSION

The future role of teaching and learning in higher education and the choices available to universities is an issue of serious debate given the serious rise of AI enabled technologies. After using AI in most of the areas today it cannot be ignored that teaching and learning in higher education can be done without the use of AI. As fast as the technology is growing and used in the field of education, the role of a teacher or trainer is going more and more challenging as they have to update themselves according to the platform used by the Educational Institutions. This makes us think about the role and pedagogies of teacher in Higher Education. Many set of tasks which are the core part of teaching practice in education will be replaced by AI based software since the programmers coded the algorithms and implemented them as a AI based software. It is the time now for Education system to rethink their pedagogical and functional model and their future operations with AI solutions. These types of solutions present new openings in education sector for all.

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