

**University of North Texas**  
**Fall-2022 Semester**  
**CSCE5290- Natural Language Processing**  
**Instructor: Zeenat, Tariq**

**Project Title:**

**Text Summarization from Real time Speech Recognition**

**GitHub Link:**

<https://github.com/PavaniMangugari/NLPPProject-9>

**Team Members:**

Achala Samudrala –11519259 (Team Lead)

Pavani Mangugari –11542749

Tharun Puri – 11558533

Venkata Sai Preetham Bonthala – 11550407

**GOALS AND OBJECTIVES:**

**1. Motivation:**

Information retrieval is one of the most widely needed use case in these days. The process of extracting the summary of a video lecture while remembering it and manually writing a summary is time taking and also intensive task for humans. There are plenty of text and video material available on the Internet. The process of developing a model for the machine to automatically convert the speech in the video to text would help for the students and lectures.

Speech recognition would mean converting the speech to text in the real time scenario i.e., exactly converting the words with means of pronunciation. Text summarization is defined as the process of finding the meanings of difficult words and gets summarised to the shorter version where we can find them easily. So, we plan to develop a model that would take the lecture and interpret and summarize it. Additionally, we are using SR with text summarization to get Question and Answers that would help the students review their knowledge regarding the lecture and automatically check the correctness. We also use Machine Translation to translate the document into another native language.

## 2. Significance:

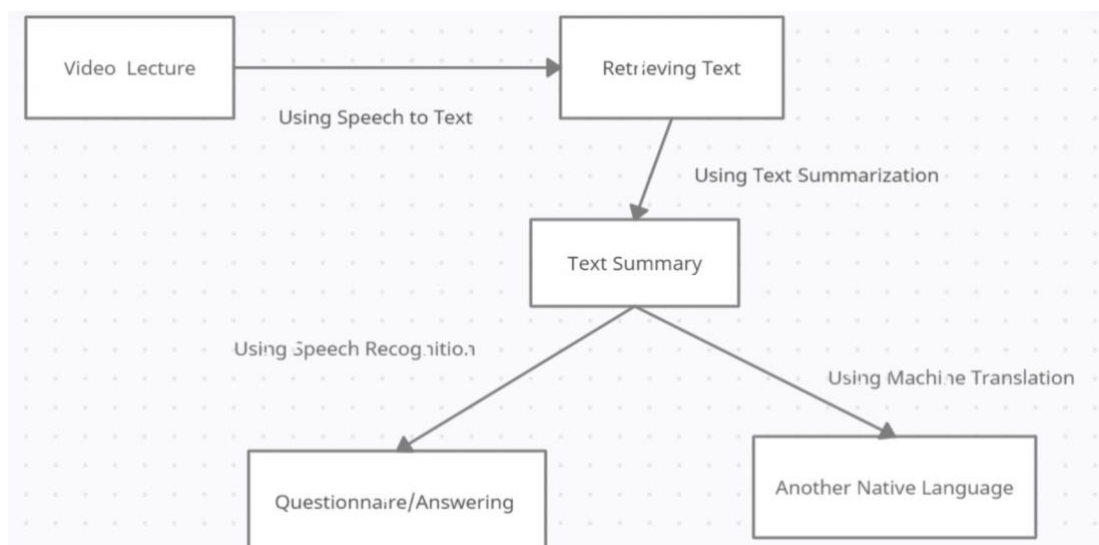
In this age where remote education and online videos are becoming hugely popular, the need for a model that can convert the speech to text is necessary. The model would not only help a lot of users, having problems with understanding the language, it would also help the users with disabilities too. The whole text and lecture are hard to memorize, so having a summary that would brief about the lecture would help the users while revising or just to know the undergoing of the lecture.

With the implementation of an additional functionality it will allow the users to view a few questions based on the lecture so that they can test their understanding in the lecture. This project aims to ease the online learning and help users who are struggling whilst listening to these classes and get concise overview of the lecture in their native language.

## 3. Objectives:

We are going to implement this project in 3 steps.

- Speech to Text
- Text Summarization
- Q&A module



**Fig: Flow chart of the project**

We are planning to do the project using the speech to text, text summarization and other training models. We will use the NLTK, SPACY, Genism, and Hugging Face tools to accomplish our project. We use the machine translation for the translating the text to another language. We are at the end of the project planning to achieve an interface that would take the video input that converts it to text summary. In turn it uses this summary to build a Q/A model and also Machine Translator for translating it to another language(Spanish/French). The goal of our project is to develop a model that will be accurate and precise in the summarization and processing that would help the users.

#### 4. Features:

The video speech is converted into text using the python modules that would allow for the speech to turn into the text.

We retrieve the text, perform the text cleaning and processing.

We then tokenize the words, perform summarization techniques to get a video summary.

Using the machine translation, we convert the text into French or Spanish.

We get the question and answers from the summary.

The user would be allowed to click for a correct answer.

The answer would then be evaluated by the machine and returns if the user is right or wrong.

#### Contribution table:

S.no	Person	Task Description	Contribution
1.	Achala Samudrala	Worked on Motivation, and basic project idea	25%
2.	Pavani Mangugari	Given the basic idea of the project(Significance)	25%
3.	Tharun Puri	Provided required Objectives for the project	25%
4.	Venkata Sai Preetham Bonthala	Given the required Features of the project.	25%

**References:**

<https://ieeexplore.ieee.org/document/9622156>

<https://paperswithcode.com/paper/predicting-subjective-features-from-questions>

<https://paperswithcode.com/paper/iit-uhh-at-semeval-2017-task-3-exploring>

<https://paperswithcode.com/paper/qdee-question-difficulty-and-expertise>