Digital India
Power To Empower

सत्यमेव जयते

NATIONAL INFORMATICS CENTRE

-BODHIR SARATHI-
A SPEECH PRIMER FOR HEARING IMPAIRED PRIMARY STUDENTS

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National Informatics Centre, Assam

Introduction

Computer technology in present time has penetrated into every strata of society be it in the field of engineering, health, entertainment industry, education, simulation of aircraft training and so on. In fact, in modern times human being's life is entwined with technology – one simply cannot survive without dependence on technology. But one question arises – ***have technology made sufficient inroad towards the hearing and speech impaired persons***.

The project '**Bodhir Sarathi - a Speech Primer for teaching primary students of Deaf and Dumb School, Guwahati'** provides scope for introducing technology to hearing impaired students.

Objective

- The primary objective of the application is to introduce technology so that learning becomes easy, simple and interesting for hearing impaired students while facilitating teachers to devote equal amount of time to all students.

- The main focus is to make the primary students relate the Assamese text with the sign language so that they can read and write with ease.

Project at present

The application at present displays videos of Assamese alphabets in sign language and speech from audio files is transformed into text and displayed in the application.

The student gets to relate the alphabet in text with the sign language of the alphabet.

Platform

The application is developed in Python as a desktop application which include :

- Basic GUI Tkinter
- OpenCV library
- Speech Recognition library
- Google Speech API

AI CONCEPT

Totransform the Assamese text being taught in the school into an **automated animated sign language** using **artificial intelligence** so that students can decipher the text together with the sign language.

Methodology

- Audio input from microphone or from audio file (.wav) using Python Speech Recognition library
- Conversion of audio to text using Google Speech API (Bengali) and parsing with Assamese vocabulary
- Breaking down of text into small pieces of understandable words by using semantics of Natural language Processing requiring Machine Learning
- Analyzing grammatical structure of the sentence and establishing relationship between words.
- Data sets of predefined sign language to be used as the input so that the software can use artificial Intelligence to display the converted audio into the sign language.

Project Team from NIC Assam

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