Mobile and Pervasive Computing (CSN-521)

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Project Report

Under the supervision of
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CP-1: TEXT-TO-SPEECH ANDROID APPLICATION
Group No. 31

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Objective:

Text to Speech Conversion is the artificial production of human speech. A computer system used for this purpose is called a speech synthesizer, and can be implemented in software or hardware. In this project we use our Android Mobile for Text to Speech. A text-to-speech (TTS) system converts normal language text into speech. Our proposed Text to speech convertor can be used for any domains, the storage of entire words or sentences allows for high-quality output. The quality of a speech synthesizer is judged by its similarity to the human voice and by its ability to be understood. Our proposed intelligible text-to-speech program allows people with visual impairments or reading disabilities to listen to written works on a mobile.

Descriptions:

Main Module: Within our project in the main module, we created a class that extends *AccessibilityService* which is a feature of the Android framework designed to provide alternative navigation feedback to the user on behalf of applications installed on Android devices.
We used the *TextToSpeech* class for converting the text into voice and for this purpose, instantiation of objects of this class is done and various properties were set accordingly.

XML files: It sets the layout of things like buttons and defines the font, color, and any text that shows by default. Here, the properties of the button of the app are defined in XML module.

Working:

Step 1: Install the app in the respective device.
Step 2: The application needs access to the Accessibility Service of the mobile which can be done like this:
Settings> Accessibility> com.example.android.mainactivity.MainActivity> On
The button of the application 'TTS Speaker' will now be visible on the screen.
Step 3: The functionality of the app is divided into two parts:

      3.1 Reading out the contents on the screen: Open any application on your phone, as you proceed onto the options, the app will read out everything for you. From the perspective of visually impaired people, the app would help in the following:

- Navigation and selection (Navigating through various options and selecting the desired one)
- Reading out articles, news from apps like Calendar, WhatsApp, TimesofIndia etc.

      3.2 Giving the input as text and listen to its speech: Enter the text in the respective field of TTSNormal. Adjust the pitch and speed of the voice. Click on 'Ready to Speak' button and the text will be read aloud.

Demonstration with screenshots: Following are the screenshots of the app accompanied by a video that demonstrates the functioning of the app.
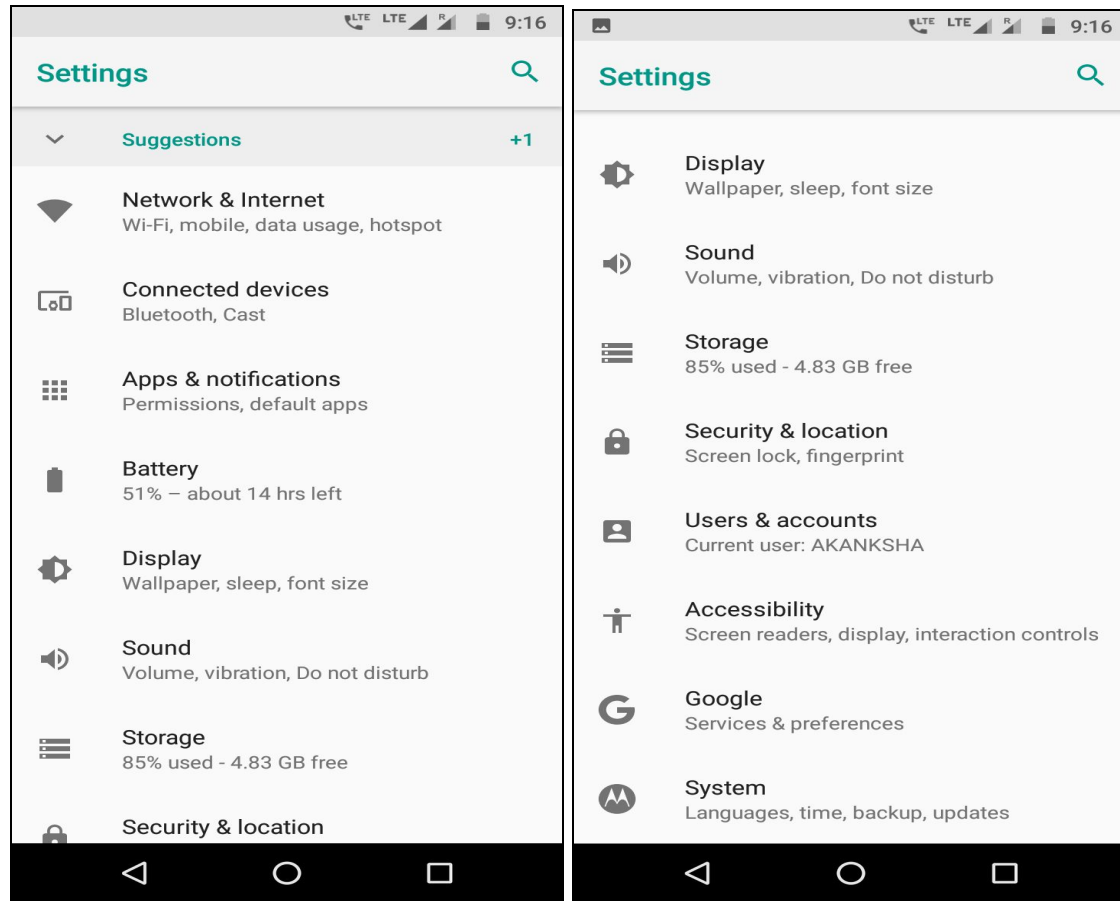
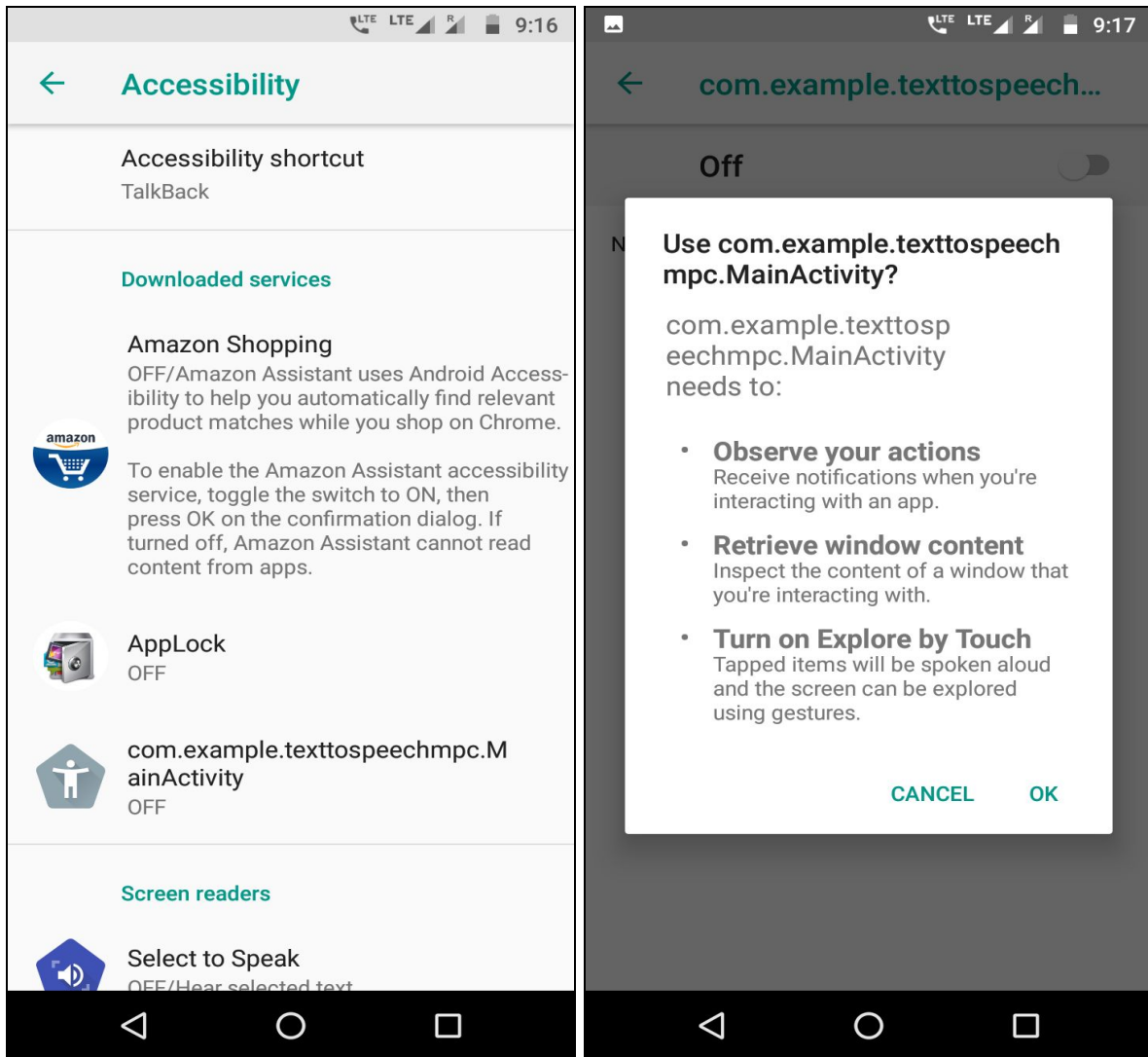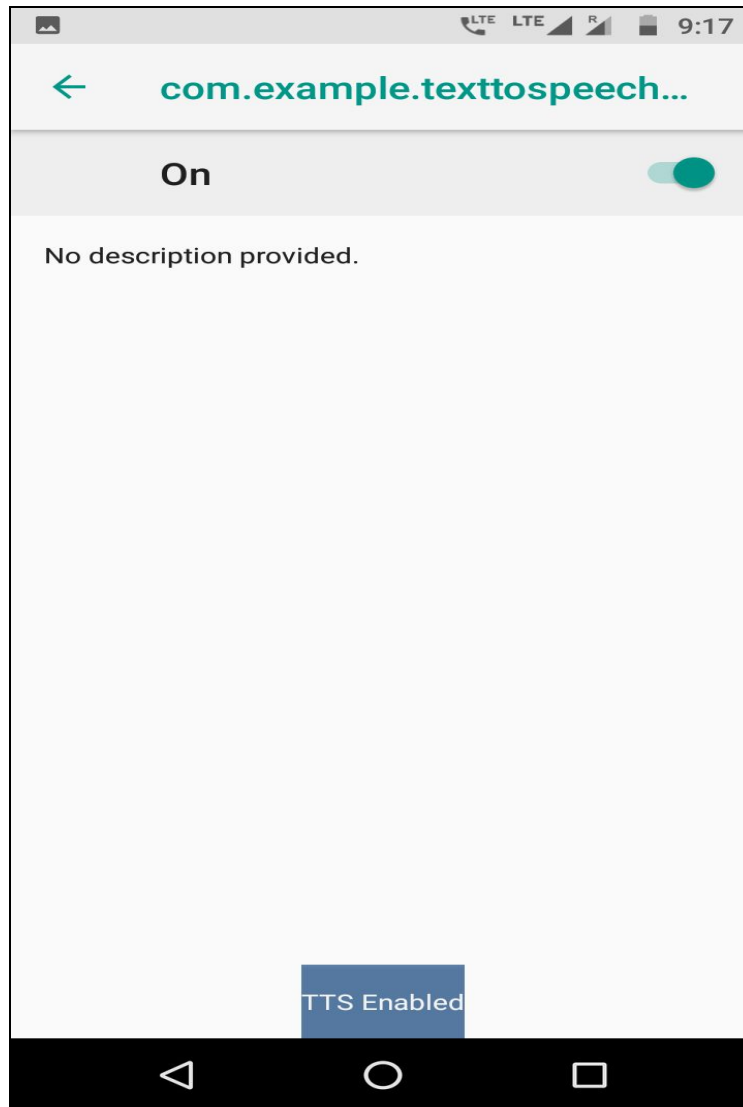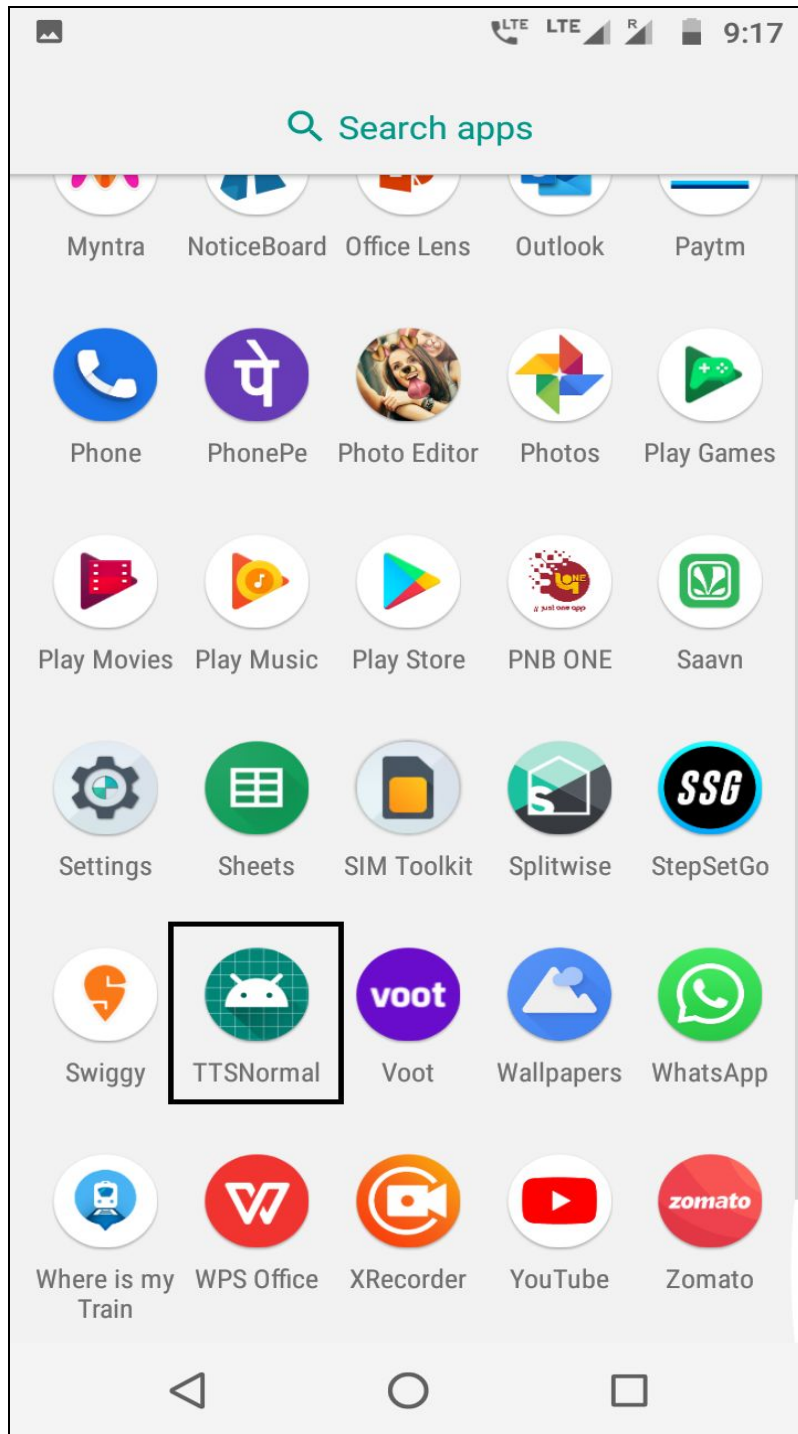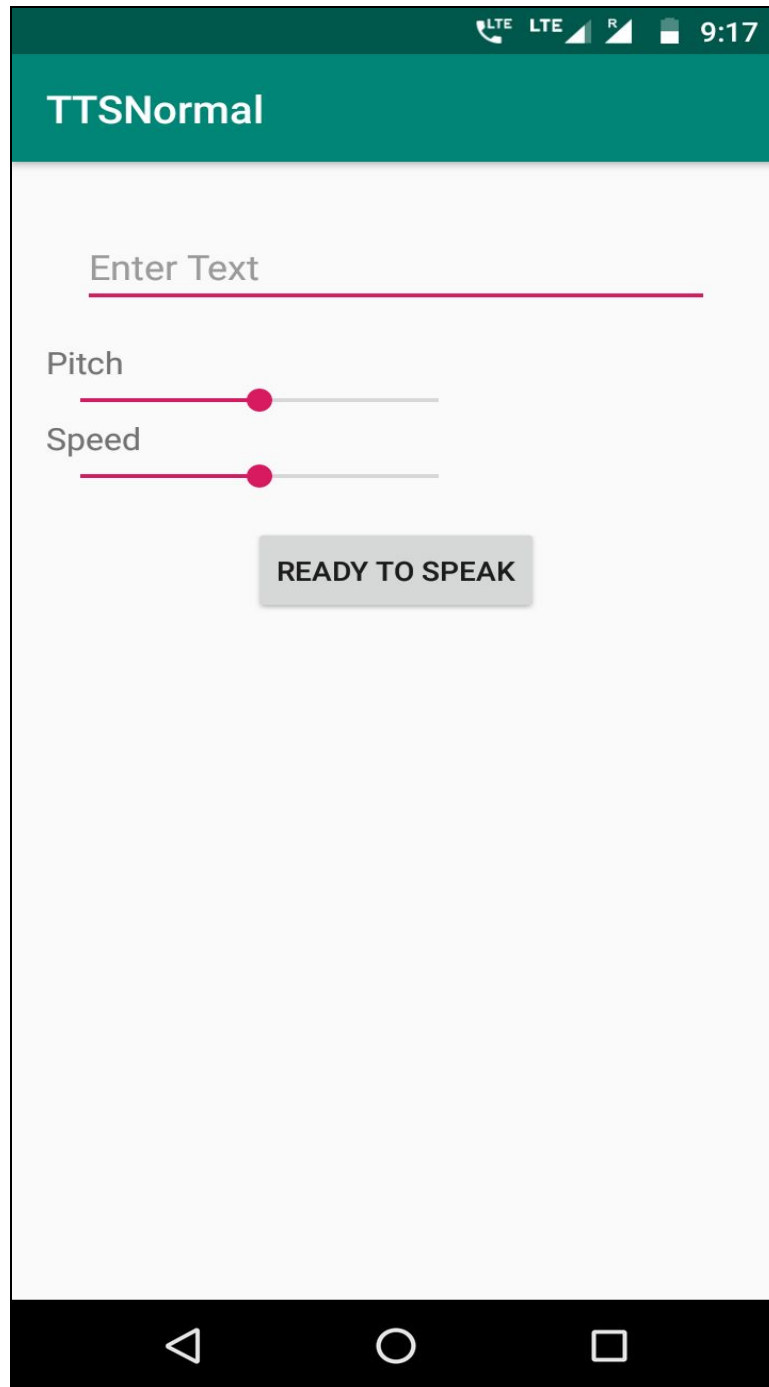
Fig.1 Go to Settings>Accessibility

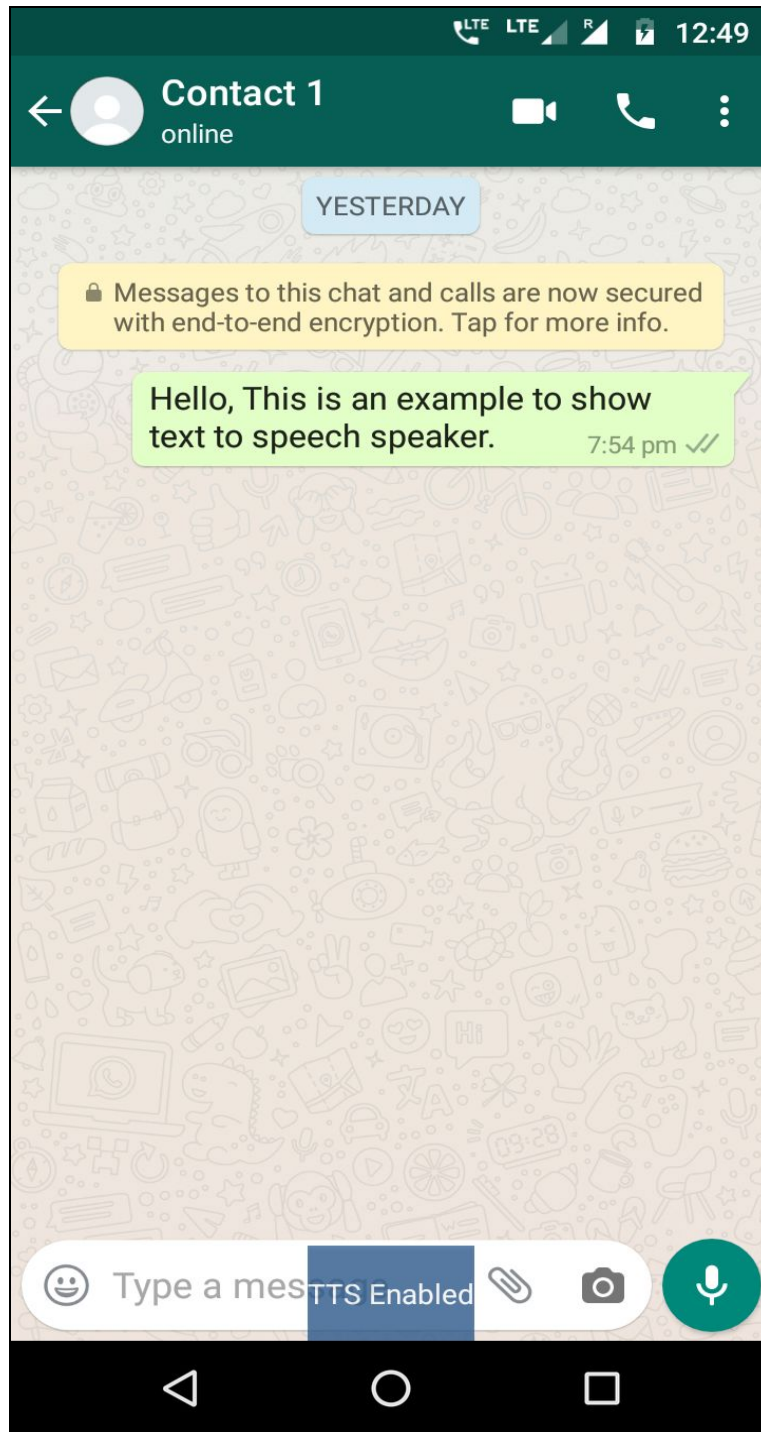*Fig.2 Select com.example.texttospeechmpc.MainActivity> Ok*

Fig.3 Select On> The button 'TTS Enabled' will be visible on the screen.

Fig.4 The icon of TTS Normal is displayed for the second functionality of the app

Fig.5 Enter text in the given field and adjust the pitch and speed as required.

Fig.6 App reading out the contents of WhatsApp

Youtube Link:
https://www.youtube.com/watch?v=8rZCUFRVGBI&feature=youtu.be