SIMON Smart Deaf Speaker Device

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Communications between deaf and persons who can hear and speak have always been a challenging task. According to the report issued by WHO, April 2021, there's an estimate of 430 Million persons who are deaf or hard of hearing. And they represent nearly 5 % of world population, unless action is taken it's predicted that by 2050 it'll get worse and rise up till nearly 2.5 billion people projected to have some degree of hearing loss. Achieving high efficiency in speech recognition, saving new phrases or user inputs in form of text/speech without needing a code developer, giving the user the ability to input text and display it as speech not only text were a target. After several developing stages, using a Raspberry Pi and mainly including "Speech_recognition/pyttsx3" libraries, now 'SIMON' can recognize speech and displays it as text, if the reply could be found in the pre-recorded database, the user is allowed to quickly play an appropriate reply. But if no appropriate reply is found, the user is prompted for text input to be converted into speech, this new input is appended to the table for future use. The recognition accuracy is 87.7%, although the given was from a non-native English speaker, and audio quality has improved by 84.6% according to the RTA analysis.

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