**ARM based implementation of Text-To-Speech (TTS) for real time Embedded System**

**ABSTRACT**

 Since decades, real time hardware implementation of Text-To-Speech system has been drawing attention of there search community due to its various real time applications .These include reading aids for the blind, talking aid for the vocally handicapped and training aids and other commercial applications. All these applications demand the real time embedded platform to meet the real time specifications such as speed, power, space requirements etc. In this context the embedded processor ARM (Advanced RISC Machine), has been chosen as hardware platform to implement Text-To-Speech conversion. This conversion needs algorithms to perform various operations like parts of speech tagging, phrase marking, word to phoneme conversion and clustered synthesis. These algorithms are coded and developed in C/C++ using Qt Creator IDE and finally implemented on commercially available ARM11 microcontroller (BCM2835). Experiments have been performed on ARM microcontroller using test cases. It has been observed that the performance of the ARM based implementation is very close to x86 implementation.

**Existing Work:**

 In the existing system, they have used Flite TTS algorithm which is a small run-time synthesis engine, and has very less clarity output and no GUI was represented.

**Proposed Work:**

In the Proposed work, we are going to using Festival speech synthesis algorithm, which an advanced version of flite and a Front GUI will be designed in order to select the desired file to be read by the system.

**BLOCK DIAGRAM**

**Hardware:**

ARM11, Head set.

**Software:**

**OS:** Embedded Linux, **Language:** C/ C++, **IDE:** Qt Creator, TTS algorithm

**Applications:**

 Reading aid for the visually disabled persons, announcement or warning systems, and electronic mail readers.

**Advantages:**

* Advantage of this project is only hardware it occupies is one GPIO Pin for data acquisition.
* It can be modified & can be applied to other working environments.