

Project Proposal

Text – to – Speech

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Project Abstract

Text-to-Speech will be a solution for people who are challenged with speaking and/or hearing. Its purpose is to aid communication for the physically challenged. The commercial version will be a compact size of 6.7” x 5.6 x 1.25”. This will include basic 16 x 2 characters LCD – black on green 3.3V. it requires ZNEO power, but no requires 3xAA batteries or rechargeable batteries and does not require a PC computer. Non-speaking individuals with problems with their fine motor skills can also use text-to-speech to aid their abilities which include people who suffer from:

- ALS (Lou Gehrig's Disease)
- Traumatic Brain injury
- Laryngectomy
- First stroke patients

Text-to-Speech will be portable enough for men to carry in their pockets and women, in their purses. These individuals will be able to use any two fingers to type information faster. Also, the unit can be restricted to indoor use only since it comes with a speaker.

Users should ensure the unit does not come in contact with water or other liquid and that the unit also has an internal memory card installed so as to retain requisite communication data. Recall phrase one of 20.

Strategy

Description of the overall design: Above

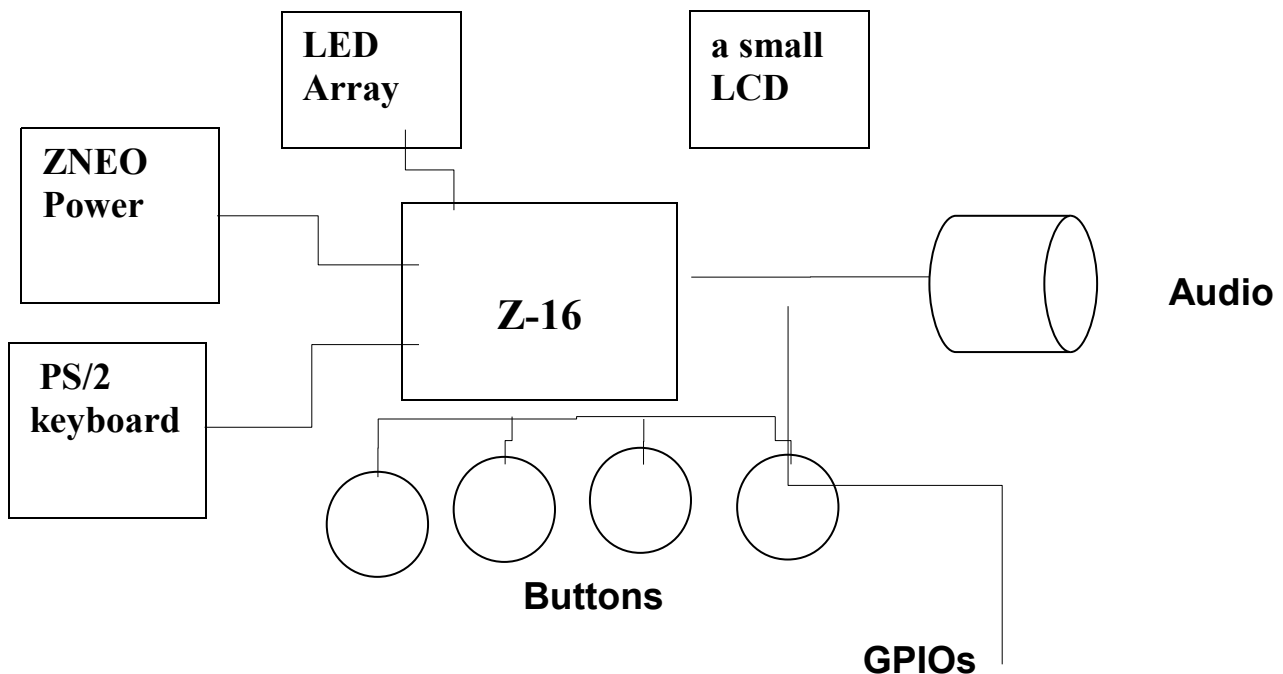
Platform: bases on the Z16 connect to a PS/2 keyboard and a small LCD display (16 x 2) and uses the companion TTS256 chip.

Capabilities: a lot of GPIOs, timers, interrupts, analog inputs.

External Hardware: A speaker, a speakjet of the companion TTS256 chip, ZNEO power, 4 buttons, LED.

Evaluations: the speakjet processes phonemes. You can implement the text-to-phonemes in software or use the companion TTS256 chip. Read Datasheets if can change it.

Software module: LED manager, speaking manager, button manager, audio manager, and main control loop. Design goal is to make an abstraction layer of the devices. New text-to-speech can be written to the abstract in the each text-to-speech. I have to make new text-to-speech developing. The TTS256 text-to-speech IC is a cool little that interfaces to the speakjet IC and allows the user to send to a text string to the device and text converts to sound the speakjet can interpret. If you send sentence to the TTS256, then the speakjet speaks the sentence aloud.



Unknowns

Power consumption may be a problem. Or battery consumption is too.

If I have to use one timer, then this may not be successful. I will use 2 timers on the updating display. This testing will tell. If TTS256 text-to-speech IC and a small LCD display develop any problems, instructional manuals would be studied to resolve the problems.

Implementation Plan

This describes how I will build my project; and what steps I will need to follow.

- ✓ Use small Z16 kit, get one from system admin.
- ✓ Acquire all components (LED, buttons, ZNEO Power, TTS256 text-to-speech IC, small LCD, and internal memory).
- ✓ Test TTS256 text-to-speech IC if needed.
- ✓ Building ZNEO power, and test life time if it continues after more than 1 hour.
- ✓ Check Display LED to confirm it is okay.
- ✓ Test Device driver (audio).
- ✓ Use 4 buttons
- ✓ Text display on the TTS256 text-to-speech if it is okay
- ✓ Draw simple milestone chart

How Unknowns will be eliminated or resolved

- ✓ I will endeavour to measure the time of building text-to-speech, this will help to checkmate system failures associated with translation and/or transmission.
- ✓ If the time is less than one hour, the ZNEO power may be not consumed.

Software Components

This free software ZNEO is simple system information and diagnostics utility that provides detailed information about my hardware component, such as my CPU, memory, operating system and power source.

Project Assumptions and Risks

Any threat or risk to the project will be highlighted and escalated as soon as they are identified.

Is there any critical path?

This is not known yet but would be highlighted as soon as it is identified.

Project Resources and Components

The following components will be required for my project:

- ✓ 1 ZNEO power
- ✓ TTS256 text-to-speech IC
- ✓ Small LCD
- ✓ Keyboard (this will be borrowed from my teacher)