Final Project Check Off Sheet

Project Title: Voice Training Karaoke Machine

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TA Signature/Date:

Design

☐ State transition diagrams, Block Diagrams, Code (Top-level, Synthesizer, FFT, AC97 interface, Song reader, Display)

Functionality

MQ

☐ Digital loop-back from microphone to headphone to verify audio interface

☐ (Synthesizer) Demonstrate ability to specify notes to be synthesized

☐ Use of FFT (test with synthesizer output) to correctly detect note

ZZ

☐ Ability to read note sequence from memory in normal play mode (LED)

☐ Music reader in pause/rewind/fast forward mode

☐ Show that playback tempo can be modified

☐ VGA display of time series (voice and/or tone samples) and FFT

MQ + ZZ

☐ Demonstrate meaningful user experience through attempted sing-along with pre-set song

☐ Demonstrate single note tuning mode, in which user tunes his/her voice to a constantly held note with audio and visual feedback
**Functionality**

- How do you interpret a frequency spectrum into a single note?
- What are the considerations for synthesizing a “useful” vocal note?
- Describe timing and synchronization challenges with an AC97 codec.
- Discuss design choices for pause/ff/rewind functions and how it is implemented with respect to the tempo of the song.
- How do you time memory access of display data with pixel output?
- What features would you add to this project in the future?