

Guitar Hero32 Project Proposal

Description

The Guitar Hero32 project is a simplified version of the console game [Guitar Hero](#), in which players use an instrumented fretboard to play cut-down versions of guitar songs and/or riffs. In our version, players move their fingers across a flat board marked with ~4 note positions while reading the upcoming sequence of notes from a waterfall plot on a screen and listening to a background track of the selected song.

Division of Responsibilities:

- Neil:
 - Mechanical fabrication of fretboard and component mounting/wiring
 - Software implementation of fretboard note input
 - Screen UI layout design
- Tyler:
 - Peripheral component sourcing
 - Software implementation of background audio playback and screen UI

Documentation website: sites.google.com/view/guitar-hero32

Peripherals List

Note that the SysTick timer and its generated interrupts will also be used for UI refresh timing and the Nucleo's user button will be used for song/"level" restart:

- Ultrasonic fretboard position sensor (*PWM or I2C*)
 - Uses PWM or I2C receive interrupts
- Note and score display (*SPI or similar*)
 - Uses SPI receive interrupts
- Audio player/driver (*SPI or similar*)
 - Uses SPI receive interrupts
 - Exact implementation TBD

Block Diagram

