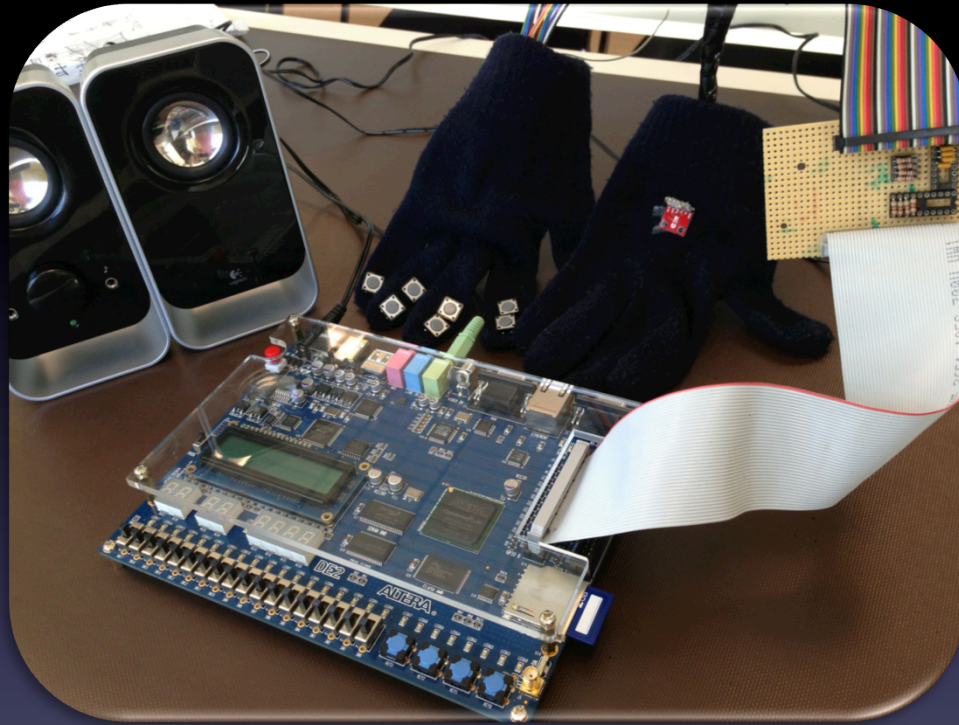


G7 Virtual Guitar Gloves

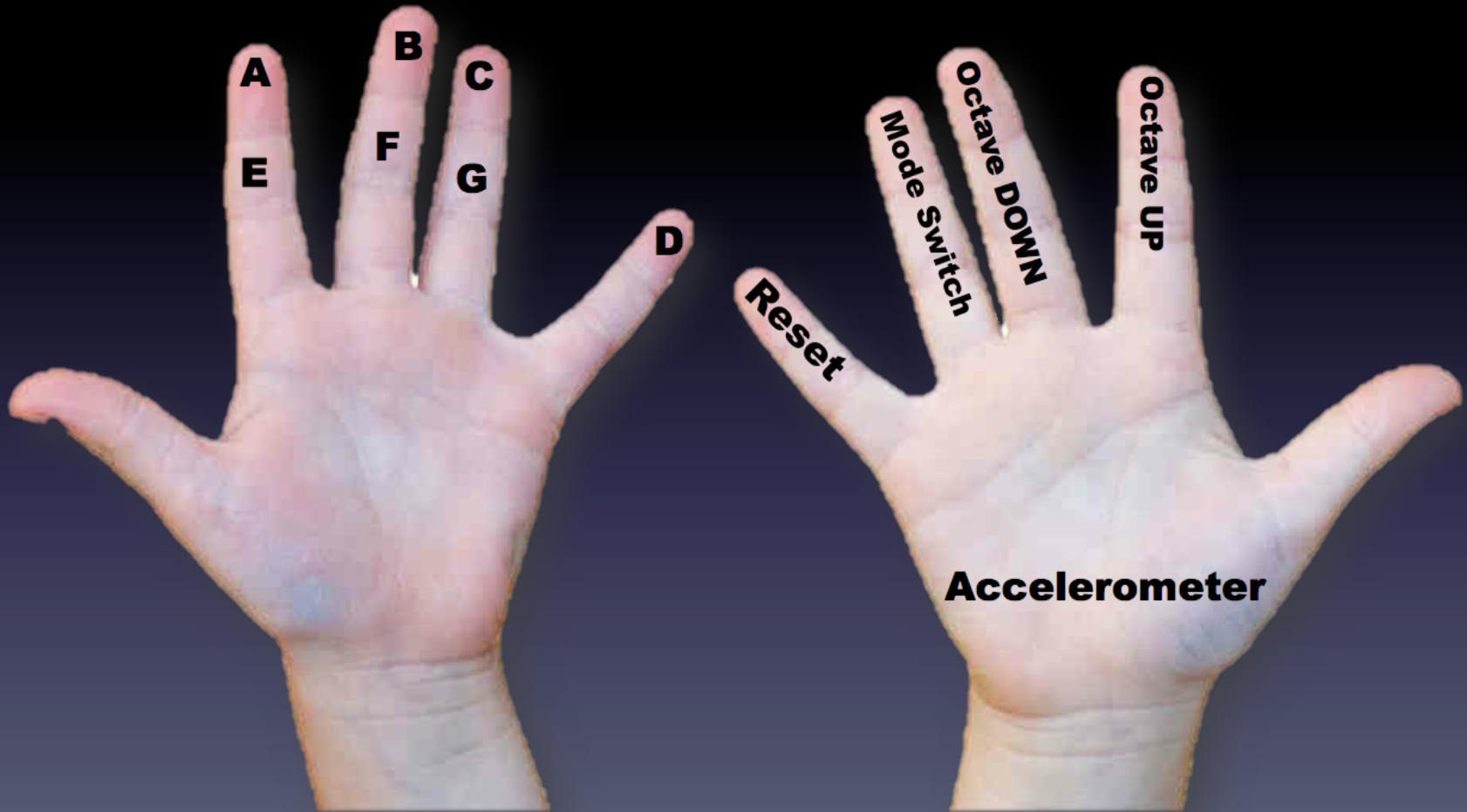


Presented by:

Elysia Jong

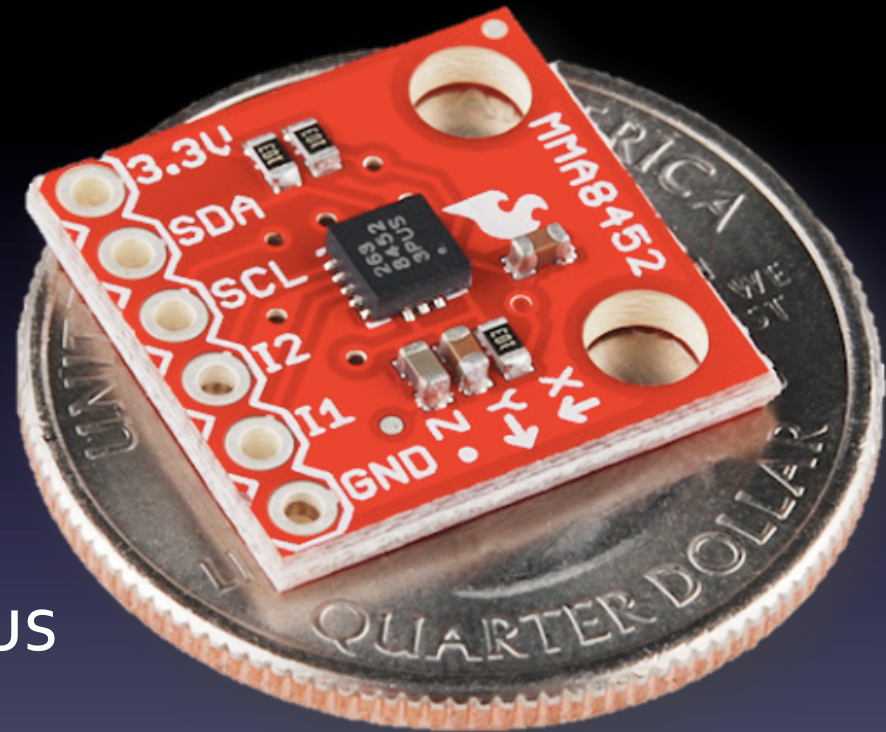
Eric (Qingyue) Zhou

Functionality



Challenge

- Accelerometer
- 3 axis
- Digital signal
- Interface to I2C bus



Backup plan

- Average current consumption: 33 mA
- Factory set trigger point: 15°
 - Digital Output
 - Range: 4 to 30 cm
 - Typical response time: 39 ms
 - Typical start up delay: 46 ms



SHARP GP2D120

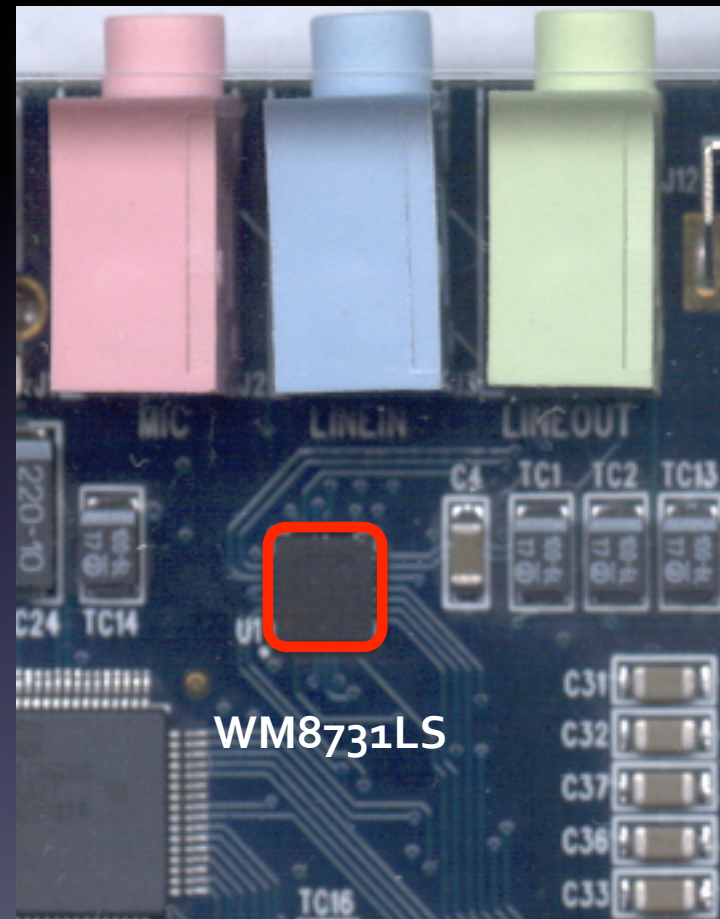
- 2 GB
- FAT 16
- Do not “Quick Format”
- Offsets for each sound files
- SD card stores 512 bytes each block

	Note A	Note B	Note C
Sector Range	8150-9050	9200-9800	9850-10600
File Size	531 KB	301 KB	374 KB

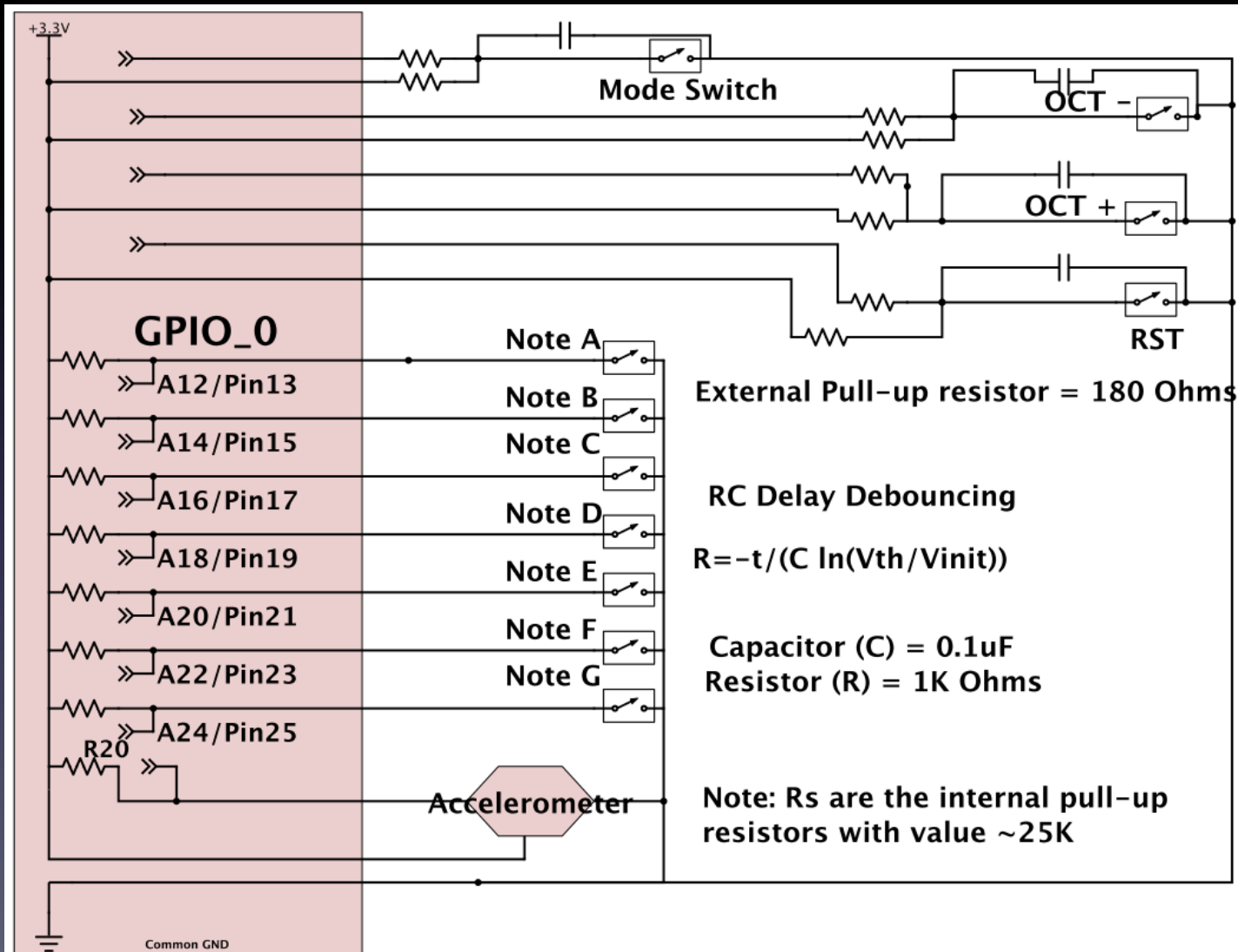


Audio Codec

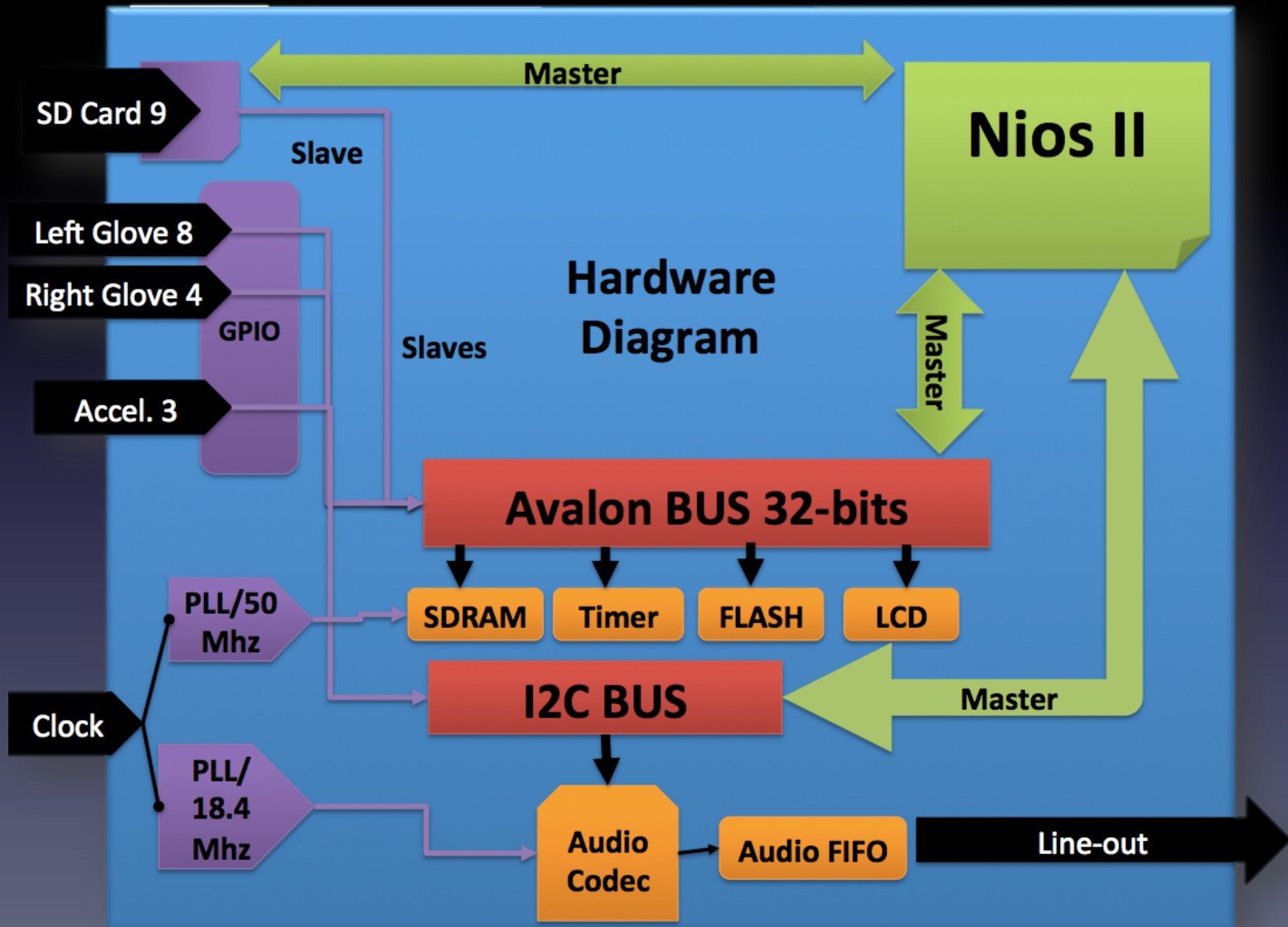
- Wave file
- I2C bus
- Sample rate: 48 KHz
- Data width: 16 bit



Schematics



Hardware Block Diagram



Software design

- Multi-tasking
 - Each task have some particular jobs
- Message Queues-polling
 - Communication between tasks
- Interrupts
 - Interrupt handler

Optional features

- Wireless
- Sharp/flat notes
- Up/down strum differentiation

Demo