

Real Time Embedded Systems Spring 2019

“Battle of the Bands”

Term Project Proposal Guidelines

Project Guidelines

Overview:

- Groups of 3-4 people will be chosen by Prof. Campisi.
- Team selects a song from 4 chord song website (link below).
- https://en.wikipedia.org/wiki/List_of_songs_containing_the_I%E2%80%93V%E2%80%93vi%E2%80%93IV_progression
- The team performs the selected song (the location to be determined).
- All musical instruments have to be implemented using “wearables” thus “air instruments.”
- Audio output from each band member will be fed to a mixer using RCA jack.
- Audio amp, speakers, mixer, and audio cables will be provided to the “band.”
- You are allowed to use any sensor for chord implementation.
- Each band is encouraged to have a “performance” look.
- Air instruments should be invisible, made of air. The less the project LOOKS the better, but if you want to use minor props you can. Such as a stick for the guitar, or a drawing of a keyboard with keys on the desk to know where keys are etc.

Example Instruments:

- Guitar
- Keyboard
- Drums
- You are welcome to use any instrument as long as it is approved by TAs.

Requirements:

- One distinct instrument per group member.
 - Ex. Bass Guitar and Guitar are different instruments.
 - Ex. Drum sticks may be used but not with direct strikes.

Provided Materials:

- Audio Shield (for each group member).
- Teensy3 Audio Shield
- Additional materials such as sensors, proto shields, or other components (if needed) have to be purchased by the group.

- 20 dollar worth of material per person, even if you buy it out of your own pocket from another vendor that is not digikey or adafruit. Include the item and price in BOM but just let us know you want to buy that item yourself on the BOM. You will submit your projects after the demo for hardware analysis, we will know if you secretly used sensors that were not accounted for in BOM. Production cost is a huge factor of the engineering world.

Restrictions:

- Cannot play the song from audio file directly
- Song cannot contain inappropriate lyrics
- No mosh pits
- No crowd surfing

Grading Criteria:

- Performance (20%)
- Creativity (20%)
- Code (20%)
- Presentability (15%)
- System robustness (15%)
- Peer review (10%)

BOM Guidelines

Include your group number and band name. One submission per team. Please be neat and concise. Give us the shopping cart with at most 20 dollar per person worth of material from digikey and adafruit ONLY. The BOM should have the following format.

Item	Description	Link	Amount
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BOM Due Date

Due 04/17/2019

Submission on NYU Classes