Official assignment

Description:

Reworked musical tesla coil in smaller scaling. Using an application with which we choose a song and send it to the coil interrupter.

We will have 2 applications for mobile android phones – one complete mp3 player, that play/pause songs and all that trivial operations. Second – app that list all “.wav” files and than with holding chosen song – it will arrive new dialog window that asks the user if he want to send it via Bluetooth to the interrupter or cancel that operation.

Then the interrupter sends out modified pulses which interrupt the coil supply so that the output to the coil has the same frequency as the audio signal.

The software for the interrupter will wait for upload command, after which the program reads the byte sequence and stores it in an external flash memory. If a play command is sent the program reads the content of that memory and converts it into respective PWM(Pulse Width Modulation) signal.

Technologies:

1. Java
2. HTML
3. C / C++
4. Embedded

Management:

Branching Strategy – GitHub Flow
Strategy of development - Kanban

First Milestone:

1. Creating an android app with android studio and java that lists all “.wav” files from phone
    a. Be able to work with all android mobile phones
    b. Be able to upload it to the phone
2. Creating a project schematic
3. The interrupter software
    a. Be able to read song via Bluetooth
    b. Be able to split and store it
    c. Output value dependent PWM signal

Second Milestone:

1. Building the hardware
    a. Creating the SSTC(Solid State Tesla Coil) driver
    b. Creating the SSTC interrupter
2. Upgrade phone application so you can send one of the pre-listed “.wav” files via bluetooth
3. Creating an complete mp3 player for mobile phone with android studio.
    a. Be able to play/pause song
    b. Be able to switch songs
    c. Be able to create albums

Third Milestone:

1. Upgrade the design
2. Code reviews and optimizations
3. Unit tests

Optional:

1. Adding AUX input to the interrupter
    a. Be able directly from the computer to play song to the tesla coil

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