**EE3176 Summer 2016- Final Project**

Lessons Learned and Project Conclusion

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In this project we built a musical metronome that’s aids a music instructor to direct a band or work in music in general. The metronome we designed is adjustable to beat and time signature to the user’s needs. This will aid the user to different genres of music and music composition types. The design is portable so it has its own independent DC power source and can be positioned anywhere the user needs because it can be controlled wirelessly using Bluetooth from any android device. Working as a team of three members in this project, we learned to work in uniform to accomplish a common overall goal and many small goals in between. The main idea was to assign something to the team member who was strongest at a particular area of the project that needed to be completed. This was at times difficult because of some team members work schedules but we met during times that worked with everyone schedules. Moving on to the technical work of the project, we seem to have used many if not all of the concepts and code techniques that we used in all the previous labs. We used or course registers with respect to pins on the micro, interrupts, character arrays, an lcd with its respective code, a buzzer, timers, serial Tx and Rx, analog to digital (ADC) code commands, and switch cases. We basically are sending individual characters from our application to the microcontroller to give it an instruction and switch what it is doing at that particular moment. We also are sending individual characters from the micro to the phone to communicate battery level with our ADC code. This will be analog rage of approximately 4V to 5.5V. If we go below this threshold the micro will not operate as it is not being supplied with enough power. One thing about taking on a project like this is having patience for code that does not do what you want it to do. We had to also figure out that the HC-06 Bluetooth module that we are using was having some issues connecting to our Android devices properly so we had to play with different applications that will pair with the HC-06. This was a time consuming experience in the case that we had to spend time figuring out what the HC-06 liked being paired with even through our BAUD rate matched the transmitter and receiver. Overall this was a great team project because it was able to give us the best out of every team member knowledge and insight. Our team organized goals for the project well and delivered throughout the whole two weeks we worked on this project together.