**Proposal for**

**Laboratory 5/6**

**Team Number 5**

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**We plan to use the hardware in the laboratory to produce our final project design. We will aim for the 90pt task and if feasible, attempt the 100pt category.**

**Our project proposal is to create a household timer. This will allow us to utilize the DIP switches, the 7 segment display, the keypad, the DAC, and the audio output.**

**A time will be entered by the user via the keypad. If desired the user can also use the DIP switches to vary the tone(s) the timer outputs when finished. The tones will be generated using the ADUC's onboard DAC. The user will then press PB1 to begin the timer's countdown. As it runs, the display will display a countdown. When the specified amount of time has passed, the timer will output audio via the ADUC's Digital to Analog Converter to signal to the user that the timer has indeed finished. The user may then press PB2, which will reset the timer/clear the display.**

**This satisfies the criteria for the 90 point category. It will use a keypad that interrupts the CPU, offloading as much processing power as possible. We will also be using analog output by using the Digital to Analog Converter to output audio. We will also not use GPIO, and instead will use memory interfaced input and output.**

**We believe that this project will create a challenge and provide an educational experience.**

**Attached is a functional block diagram. It shows all of the external components, wired to the FPGA, and an ARM processor to run the control logic.**