**Proposal**

We can start by breaking the project into multiple pieces.

- Make the arduino control a servo.
    - We will use PWM to control the speed and direction based on inputs from the FPGA.
    - We can start by using inputs from the Arduino to ensure that part is working.
- Use a keyboard to activate LEDs on the FPGA.
    - Quartus has a built-in IP for PS2 keyboards. This can help us understand how the FPGA interacts with other electronics.
- Get the FPGA to interface with the Arduino.
    - This can be done with an SPI. A future lab can help introduce how to do this.

Once we have each component working the goal of the project will be to use the interface between the FPGA, Arduino, and a keyboard in order to communicate and control the speed and position of a servo.

**Gantt Chart/Project Schedule**

| | Week of 11/7 | Week of 11/14 | Week of 11/21 | Week of 11/28 | 12/5-12/7 |
|---|---|---|---|---|---|
| Control servo using an arduino | | | | | |
| Program the arduino to accept inputs from the fpga | | | | | |
| build circuit to connect the arduino to the fpga electronically | | | | | |
| use spi to interface with arduino | | | | | |
| Use quartus's pi for ps2 keyboards to connect fpga | | | | | |
| program fpga to display values and record inputs from keyboard | | | | | |
| connect components together and test final design | | | | | |
| organize for repository | | | | | |
| prepare demo | | | | | |
| prepare project report | | | | | |