



Epic Web Hero

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Gameplay Introduction

- Wear gloves that shoot “webs” (lasers)
- Rid the city of evildoers (+150 pts)
- Protect civilians (if harmed, -100 pts)
- You have two minutes
- Your web shooters can only release 3 seconds worth of web at a time, so be sure to allow chances to recharge
- Watch out! As you get better, the villains get faster!!



FPGA I/O and Important Hardware

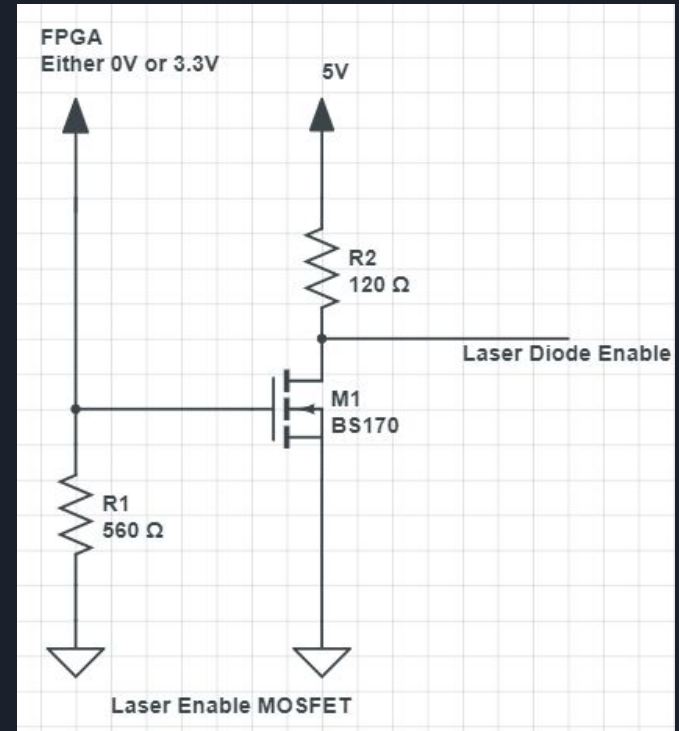
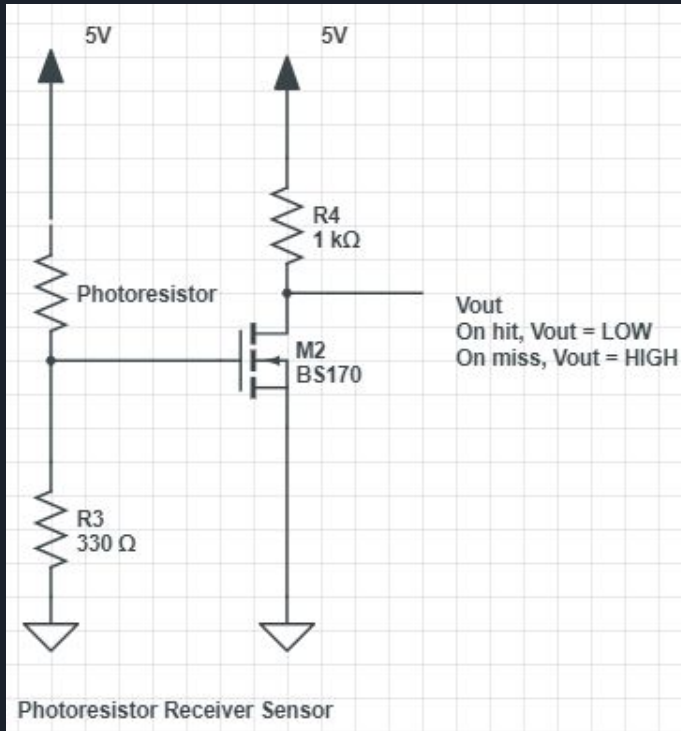
Input

- Glove Buttons
- Photoresistors
- Start/Reset Button

Output

- Target Selection Bits
- Laser Enable
- Score

Core Circuit Design





Instructions Added/Processor Changes

- randn \$rd
 - Pseudorandom number selected in range [0, 9] stored to \$rd
- timer \$rd
 - Timer started to run for \$rd seconds
- halt
 - Halts progress of processor until reset
- Register file
 - Designated certain registers exclusively for I/O



MIPS Code Structure

- Wait for reset button to be pressed
- Initialize values and select two targets as active
- Game Loop
 - Game timer and button check
 - Target hit check
 - Target timer completion check
 - Repeat game loop until game duration elapses, reset is triggered, or score exceeds 9999 (maximum)