

# Project Checklist

## Dot Finder - Paul

### Center of Mass Module

- Display an image that shows the input image from the camera in RGB.
- Display the image with the blue and green channels removed.
- Display the image after the result of the threshold filter.
- Demonstrate the center of mass calculation by displaying a square in the coordinate location centered at the computed center of mass. The square will be overlaid on top of the image from the camera. Alternatively, the computed center of mass location can be displayed on the hex display.

### Coordinate Transformer

- Demonstrate the ability of the coordinate transformer to convert the output of the center of mass module to an LCD screen coordinate. The before and after coordinates can be shown on the hex display. Alternatively, a centered square can be displayed at computed screen coordinate. If issues arise that prevent the implementation of the perspective transform, restrictions for camera position will be instituted.

## Duck Hunt System - Tiff

### Cloud Generator

- Display clouds that move across the sky at constant speeds.

### Duck Generator

- Correctly animate duck when flying and getting shot (dying).
- Demonstrate matching up the x & y coordinates of the dot finder to the duck coordinates to hit the duck. The duck will be dead after 3 hits.
- Demonstrate the ability of the random number generator to introduce unpredictability in the system by making the number of between ducks appearing be unpredictable as well as the bush that the duck comes out of.

- Demonstrate progressively increasing duck speeds. The first 3 ducks fly at slow speed, second 3 ducks fly at medium speed, and last 2 ducks fly at high speed. If time allows, demonstrate ducks flying at varying speeds and angles.

#### Video Controller

- Show correct prioritization: ducks should hide behind the bushes and clouds.
- Demonstrate control of image transparency for clouds, ducks, and bushes.

### **Duck Hunt System - Spencer**

#### Bush Generator

- Demonstrate bush controller's correctly functioning FSM to control the position of the bush.
- Demonstrate that the bush ROM correctly stores and outputs bush RGB pixel data.

#### Text Generator - Score Keeper

- Correctly counts number of ducks killed.
- Displays the number of ducks killed.
- Correctly counts down from a given default time.
- Gameover goes high if preset score is not reach by time = 0.

#### Audio Controller

- Audio handler sends correct address to audio\_ROM for given input signals
- Audio ROM stores pre-recorded sounds. For a given address, output the correct sound to the speaker

#### Laser Gun

- Outputs trigger signal when trigger is depressed.
- Accurate laser shot when using sight.