De Jesus, Juan
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Checklist Deliverables

1) Commitment
    a) Center of Mass Module:

    This module will utilize the matching pixels obtained from the Hue Detector module and run an algorithm to determine where the center of the ball is located. We are aiming for this module to effectively follow the center of the ball throughout the entire screen.

    b) Hue Detection Module:
    This module will compare the Hue value of a pixel to predetermined hue values found through testing, and create a "matched pixel" if it is in the bounds. We are aiming for this module to match a high concentration of pixels of the ball, with very minimal matching on the surroundings.
    c) FSM Module:
    This module will handle all game logic, deciding when a throw is good enough, and when the game is over. We are aiming to demonstrate it works by scoring transitioning to each state with the conditions explained in our Proposal.
    d) Memory Module:
    This module will be storing the location of the ball when the FSM module asks for it to do so. We are aiming to demonstrate that we can effectively store values that COM feeds to this module consistently when replay is engaged.
    e) Sprite Generators:
    This module will create a "blob" based on what needs to be displayed. We are aiming for this to show COM, scoreboard, threshold lines, and indication of a low.
    f) Ntsc2zbt:
    This module was handed to us for black-and-white display, but by modifying it with ycrcb2rgb, we were able to make a variety of changes that allowed for colored display. We are aiming to demonstrate that we can show colored display on the monitor.
    g) As an overall commitment, we are aiming for all of these modules to come together to allow a system where two players can throw an object and the system will not only give indications of validity of the throws, but also offer a replay option of the throw, plus a scoreboard for point tracking.

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2) Goal

The overall goal is for this project to meet twice the level of complexity of Lab 4.

a) The FSM itself will be transitioning to around 8 different states, and most of these states can transition to more than one other state. State transitions occur due to a variety of inputs. There will be visual, switch, buttons, threshold lines, and even the scoreboard causing transitions. There will also be one transition based on "time-out", similar to Lab 4. We believe this is similar in difficulty to the implementation of Lab 4.

b) The rest of the modules, being detection of the hue, sprite generation, RGB display and especially the Center of Mass algorithm calculation all combine to be also roughly similar in difficulty to Lab 4. In fact, with the addition of replay memory storage, we believe it definitely matches the amount of complexity associated with Lab 4

3) Stretch Goal

We had a functionality (replay) that we really wanted to add into our project, but due to the fact that COM and hue detection has been quite challenging, it seems much more reasonable to work on it during our stretch goal week, and hence, consider it more of a stretch goal for the time being.

We still maintain our previous stretch goal, which is detecting whether the ball leaves the table through the side or the back end, by using vertical threshold lines, as explained in our proposal.