

# Checkoff Checklist: Digital Shooting Range

Emmanuel Azuh, Mubarik Mohamoud

6.111 Digital Systems Laboratory

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## Commitments

Modules:

- Target detect -(Mubarik)
  - ❖ NTSC and ZBT interface
  - ❖ YUV to RGB
  - ❖ RGB to HSV
  - ❖ HSV color reduction
  - ❖ Centroid detection
  - ❖ Coordinate transformation
- IR communication - (Emmanuel)
  - ❖ IR transmission using 22 bit serial data for about 5 - 6 meter range.
  - ❖ IR reception
- Target display - (Mubarik/Emmanuel)
  - ❖ Concentric circles display (target display) - (Mubarik)
  - ❖ ASCII display (for score display) - (Emmanuel)
  - ❖ Incident blob display (mark of the bullet on the target) - (Emmanuel)
- Sound - (Mubarik)
  - ❖ Play the sound of the gun fire.
- Game Logic - (Emmanuel/Mubarik)
  - ❖ The game FSM to control what is being displayed on the target screen.

## Goals

Modules:

- Target detection
  - ❖ Accurately(with in few pixels) determine the heading of the gun from up to 5 meters.
- Target display
  - ❖ Add immersive background.
- Sound
  - ❖ Appropriately timed gun fire sound.

- Game Logic
  - ❖ Allow multiple players.

## **Stretch goals**

Modules:

- Target detection
  - ❖ Add Gyro for better roll estimation and for target location prediction.
- Target Display
  - ❖ Allow the players to type their names and display them on the target with their score.
- Sound.
  - ❖ Add low volume background music(playing back pre-recorded samples).
  - ❖ Add sound effects to the gun fire(e.g: echo, reverse echo etc )