Target Hunter - The Best Game for Hicks

Austin & Casey
An Overview
The Breakdown
The Display Module

- Background Image from BRAM
- Target Sprite
- Sight Sprite

To be Added:
- Timer Countdown
- Ammo Display
The Rifle Module

Safety Switch  Trigger Button  Gyro Sensor
The Image Processing Module

- Convert Black and White to Color
- Tune Color Filter
- Track Color of Barrel Tip
- Output Coordinate of Barrel Tip
The Block Diagram

- Camera
  - Image Processing
    - Aim Processing
        - Rifle
  - Score
    - Aim Target/Overlap
        - FSM
  - Display
The Aim Processing Module

- From Image Processing Module
  - Location of Barrel

- From Gyro Sensor
  - Pitch Angle
  - Yaw Angle - Side to Side

- Geometry
  - Distance Variation
Extra Modules

- **Target/Aim Overlap**: Detect if/where on the target the player hits
- **Score**: Keep a running score for that level
- **FSM**: Keeps track of game level and whether the player has enough points to advance
The Risks and Challenges

- Interfacing Gyro with the FPGA
- Accuracy in Aim Calculation
- Sound Module if extra time
- Build More Challenging Levels
## Timeline

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