Autonomous Racecar Checklist
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Commitment: Car moves slowly around circular track
- ❏ Track Recognition (Battushig)
    - ❏ We use a VGA camera in YUV mode to do image processing on a drawn track to determine its shape. The module will be able to process simple tracks like ovals.
- ❏ Car Position Tracking (Kevin)
    - ❏ We use a VGA camera in YUV mode to track a single infrared LEDs placed on the roof of the car. This allows us to determine the position of the car. We deduce the heading of the car based on the differences between the known positions.
- ❏ Car controller (David)
    - ❏ Move in small discrete steps utilizing MOSFETS connected to the controller buttons to simulate human input

Goal: Car can handle tracks with left and right turns, movement is more fluid
- ❏ Track Recognition (Battushig)
    - ❏ We use a VGA camera in YUV mode to do image processing on a drawn track to determine its shape. The module will be able to process more complicated tracks than the module in our commitment.
- ❏ Car Position Tracking (Kevin)
    - ❏ We use a VGA camera in YUV mode to track a pattern of infrared LEDs placed on the roof of the car. This allows us to determine the heading and position of the car. Having a pattern of LEDs allows us to more accurately track the heading of the car which will improve our car control
- ❏ Car controller (David)
    - ❏ Optimize controller to allow movement in more fluid steps

Stretch Goals: "Gameify" the project
- ❏ Be able to identify a second human controlled car
- ❏ Identify "checkpoints" for the human controlled car
- ❏ Detect laps completed by both cars and determine a winner of the race