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Rectilinearizer Checkoff Checklist

Commitment (minimum functionality):

- Reads camera frame into memory (Matt/Patrick)
- Display camera frame on screen (Matt/Patrick)
- Can manually specify 4 locations on screen as corners using labkit buttons (Matt)
    - Part of human interface - must be tested manually
- Does perspective transformation (Patrick)
    - Testbench - provide a sample set of corners and observe the memory addresses that the perspective transformation assigns to various pixels
- Displays transformed (perspective corrected) image on screen (Patrick)
    - Part of integration - must be tested manually

Goal (desired functionality):

- Image processing provides corner suggestions - shown by moving corner sprites to location of corners. That functionality consists of the below modules:
- Gaussian Blur module
    - demonstrated by outputting an image on screen with a gaussian kernel applied to it (Matt)
- Canny Edge Detection module
    - demonstrated by showing an image on screen with white pixels for edges in the image (Matt)
- Hough Transform module
    - demonstrated by producing the equation for the four edge lines on the hex display (Matt/Patrick)
- Corners from Edges module
    - demonstrated by producing the coordinates of four corners on the hex display (Patrick)

Stretch:

- Write output image to SD card - demonstrated by placing SD card in PC and viewing image (Patrick)
- Control user interface with a mouse - demonstrated by moving a sprite around the screen with a mouse and clicking on UI elements (Matt)