MECH423 Final Project
FanFaceTracker

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Link:

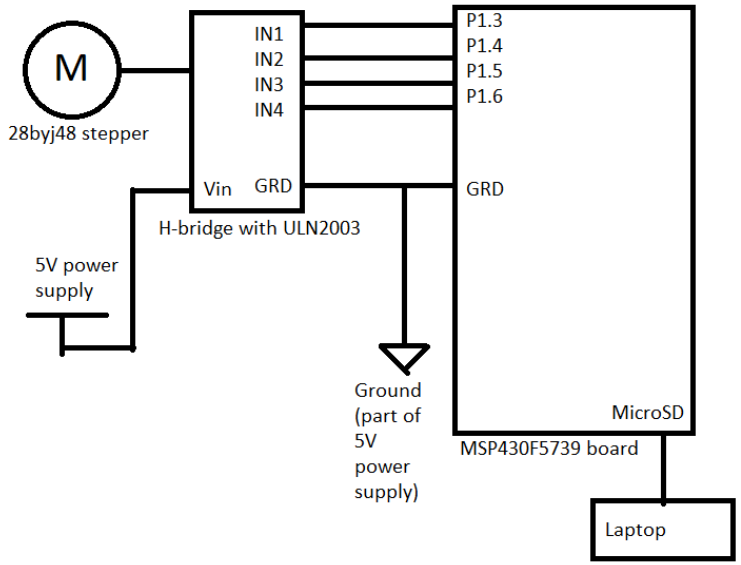
https://github.com/rprakitpong/fanfacetracker

https://www.youtube.com/watch?v=s85OwPzjlDE

Mechanical

- Motor shaft connected to pinion
- Circular rack glued to turntable
- Fan and camera sit on turntable
- Jury rigged with home equipment and 3D printing

Electrical



- Receives byte via UART
- Difference between byte and 127 is used as step count and direction for motor movement
- Similar to exercise 2 of lab 3

Software

```python
# set up machine
machine = Machine()
# set up tkinter app
app = GUIcontroller(machine)
# set up CVController
cv = CVcontroller(machine)

while(True):

    # update CV
    cv.update()
    # update machine
    machine.update()
    # update gui
    app.update()

    # get out of loop, press 'ESC' to quit
    k = cv2.waitKey(30) & 0xff
    if k == 27:
        break

# end camera
cv.end()
# end machine communication
machine.end()
# end tkinter window
app.end()
```

- Machine: serial communication class using serial with sendCommand(value) method to move motor
- GUIcontroller: GUI class using tkinter displaying angular displacement and has buttons to move motor
- Cvcontroller: CV class using cv2 getting image from camera and moves motor till face (if in frame) is centered in frame
- Functionalities neatly encapsulated into classes

Interactions