SwerveStopper: Kinematic Anomaly Detection Street Camera Model

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Research Question

Is there a way to hold more drunk drivers accountable and in turn prevent more from getting on the road in the first place?

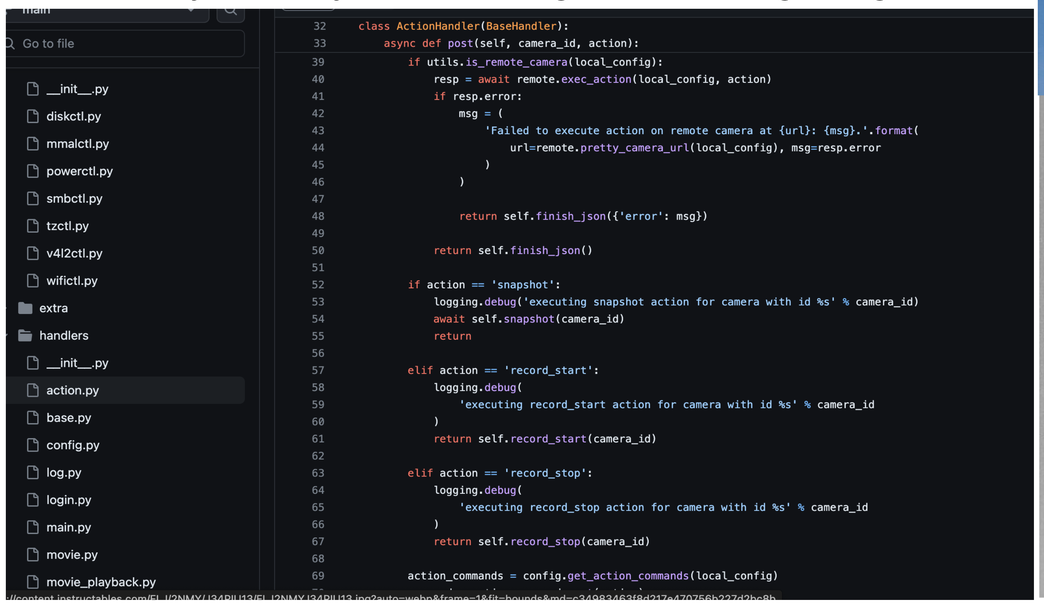
Many individuals who drive inebriated never get caught and never have to face the consequences of their actions which leads to an increased likelihood for future drunk driving.

Background

Drunk driving is a prominent issue in today's society and not enough measures have been implemented to address this problem. The only way to actually ensure less drunk driving is to hold more drunk drivers accountable for their actions. That is where in theory the SwerveStopper camera comes in and saves the day.

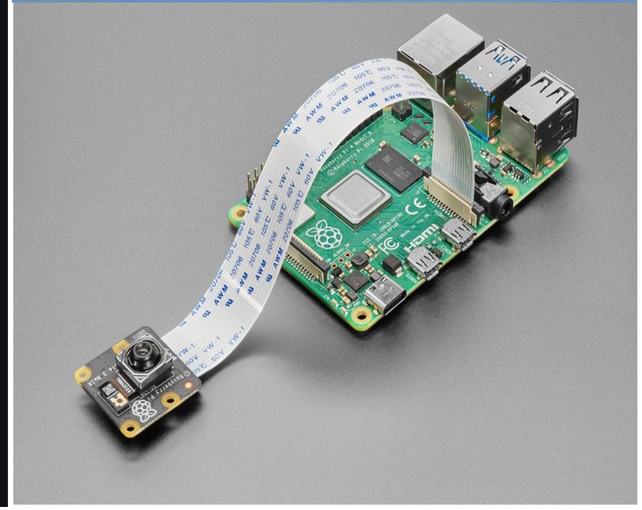
Outcomes

I built a motion detecting camera from a raspberry pi, a compatible camera module, and motioneyeOS which is software I installed on an SD card to insert into the raspberry pi. I tested out its motion detecting capabilities on a remote-controlled toy car. The camera successfully captured videos of my toy car moving and emailed the data captured to my email address. Note that the motioneyeOS software detects motion through changes in individual pixels. I modified the motioneyeOS source code in Python to only detect changes in motion for the left one-third of the pixels and the right one-third of pixels so essentially if the toy was swerving or not moving straight.



Conclusion and Future Work

Given that this is a very small-scale model of what this solution could look like, there is much more work to be done. The idea would remain the same in theory but just implemented on a larger scale such as a street camera so that the footage captured would be proportional enough for the purpose of recording vehicles.



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