Project Name: Vacuum ATM	
Student Name: Daniel Stromberg	Capstone Date:5/17/24

Project Motivation and Overview:

      With 2 dogs and a cat, my house needs frequent vacuuming. Vacuuming always falls off the radar. The Vacuum ATM will incentivize anyone in the house to vacuum by dispensing a reward (cash or otherwise) after they vacuum. The Vacuum ATM will lock out any more rewards for several days, showing an alert when it is ready to give out another reward.

      Cash will be dispensed either with rollers and a stepper motor, or through a modified capsule toy vending machine.

Minimum Features:
- Track the accumulation of dust over time.
- Track the amount of time that has passed since the last time the vacuum was used.
- Track whether the vacuum is charging or in use.
- Alert the household when the vacuum is ready to be used (when a reward will be dispensed for vacuuming). A simple LED would be a basic option.
- Reward the person who vacuumed (Basic option would be credits or leaderboard shown on a dashboard)

Desired Features:
- Show vacuum use on a dashboard (dust levels, how long until vacuum is ready, etc.).
- Dispense dollar bills (or other incentive) when user has vacuumed long enough.
- Send a text/email to let house members know the vacuum is ready to reward someone for vacuuming.

Stretch Goal Features:
- Get weather data and increase vacuuming frequency if wind is high.
- Detect who vacuumed (separate buttons).
- Use fingerprint sensor to ID who has vacuumed.

Anticipated Components:
- Reed Switch or Hall effect sensor
- ~~Stepper Motor & controller board (large motor if using toy dispenser)~~ – updated 4/28, opting for other option.
- Neopixels
- Fingerprint sensor

Concerns and Considerations (Project Risks and Potential Mitigations)
- How to detect if someone actually vacuums vs taking it off the wall, doing nothing, and replacing it?
- How to dispense rewards?
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Other Information:

Project Implementation Timeline:						
Tasks	12-APR	19-APR	26-APR	3-May	10-May	17-May
Project Plan	X					
Plan Dispenser, order parts		X				
Make overall design			X			
Test Vacuum logic w/basic parts			X			
Design display			X			
Build/assemble dispenser				X		
Final Assembly					X	
Finish Hackster.io					X	
Edit Video						X
Finish Presentation & Video						X
Capstone Presentation						X