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| Project Name: Snack SOS? Happy Snacks? SnackTrax? | | | | | | | | | | |
| Student Name: Phylicia Bediako | | | | Capstone Date: | | | | | | |
| Project Motivation and Overview:   * We enjoy snacks, but snacks run out, get stale, etc * We have to let Monica know when we need more snacks   Minimum Features:   * Monitors pantry conditions (humidity, temperature) and displays on OLED * Alerts if one or more conditions is out of bounds (too hot, too humid) via hue light and/or lava lamp * Manual control- set temp and humidity threshold via encoder   Desired Features:   * Checks if we’re running low on/out of snacks (by weight) * Alerts us if we’re running low on/out of snacks (by weight)   Stretch Goal Features:   * Tracks expiration date and alerts to expired snacks * Uses a light to randomly pick a messenger * OLED scrolls through conditions unless something is wrong, then it only displays that as a “warning” message | | | | | | | | | | |
| Anticipated Components:   * Required: hue lights, wemo outlets, OLED Display * Encoders * BME 280 * Neopixels * Load cell and amplifier for scale * Wires | | | | | | | | | | |
| Concerns and Considerations (Project Risks and Potential Mitigations)   * Can tracking be done by weight? Can weigh box and set a threshold * Would each snack need its own expiration date, weight information entered? Expiration date may not be feasible for this project, but weight info doesn’t need to be entered if a single threshold is set in the code regardless of snack. Alternatively, can consider using an encoder for manually setting a weight threshold if there’s extra time. * Is it unwise to use two encoders, one for temperature, one for humidity? No, it’s not unwise but it’s possible to combine the functions and features into one encoder using the encoder button feature and switch case code. Consider the switch case function with separate encoders as a backup plan if totally necessary. | | | | | | | | | | |
| Other Information:   * Can measure encoder and plan for 3D printed cover using calipers * Load cell needs to be * Consider neopixels for registering weight of boxes * Consider neopixels for highlighting the humidity vs temp feature if using a single encoder * Will need a plate and stabilizing base for the scale, there are some examples of how load cells have been used in class | | | | | | | | | | |
| Project Implementation Timeline: | | | | | | | | | | |
| Tasks | Day 1  Mon | Day 2  Tues | Day 3  Wed | | Day 4  Thurs | Day 5  Fri | Day 6  Sat | Day 7  Sun | Day 8  Mon | Day 9  Tues |
| Project Plan | X |  |  | |  |  |  |  |  |  |
| Flowchart, schematics, Fritzing | X | X |  | |  |  |  |  |  |  |
| Gather supplies | X |  |  | |  |  |  |  |  |  |
| 3D Design |  | X | X | | X |  |  |  |  |  |
| Determine thresholds (humidity, temperature, weight) and light/wemo reactions |  | X |  | |  |  |  |  |  |  |
| Wiring BME, encoders, OLED |  | X | X | |  |  |  |  |  |  |
| Wiring load cell |  |  | X | |  |  |  |  |  |  |
| 3D print |  |  |  | | X |  | X |  | X |  |
| FUSE Makerspace reservation |  |  |  | | X | Closed | X | Closed | X |  |
| Calibrate scale |  |  |  | |  |  |  |  |  |  |
| Code encoders, BME280, hue lights, wemo outlets |  | X | X | | X |  |  |  |  |  |
| Soldering BME280, load cell, neopixels |  | X | X | |  |  |  |  |  |  |
| Wiring load cell, neopixels |  |  |  | | X | X |  |  |  |  |
| Assemble case for photon breadboard |  |  |  | |  |  |  |  |  |  |
| Assemble weight plates, stabilizing base for load cell |  |  |  | |  |  |  |  |  |  |
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| Presentation |  |  |  | |  |  |  |  |  | X |