Input Types: Weight sensor, Real Time Clock, Manual Feed Button

Output: Motor, Sound Alarm, LED

Problem Statement

Background: A local animal shelter is looking for a low-cost, programmable automated pet feeder that is capable of dispensing food for cats and dogs at scheduled time and monitor if the food has been consumed or not and alert the staff if any issue.

Problem: There is a need for an low-cost, programmable automated pet feeder system as the animal shelter staff have a busy schedule and are having a difficult time feeding cat and dogs on time.

Objective: To create a low-cost, programmable automated pet feeder that is capable of dispensing food for cats and dogs at scheduled time and monitor if the food has been consumed or not and alert the staff if any issue.

Scope:

- Dispense pet food for cats and dogs at scheduled time.
- Monitor if the food has been consumer via weight sensor.
- Alert staff in case of issues such as food not eaten, dispensing failure.
- Use cheap affordable components to make it budget friendly such as simple motors, weight sensors, and basic microcontrollers like Arduino or Raspberry Pi.

Expected Outcome:

A programmable automated pet feeder system that does as it is programmed to with minimal break downs occurring during that time period of it's service. That is able to help with the daily day to day activity of the staff at the animal shelter.

Assumptions:

1. There are 2 containers with 2 already filled foods at the top separating cat and dog food
2. Staff will be able to maintain and make it running
3. Dogs and Cats will be guided to their each respective containers
4. Left Over food will be taken care of the staff as there is no feature to keep the left over into the system again
5. Cats and Dogs will be under supervision on the duration of the feeding time

6. The time is at sync with the local animal shelter

Limitations:

1. Since the project is on low budget advanced features like pet detection system to dispense pet food accordingly could not be added.
2. Additional motors that push the containers near the pet so that they can eat well without having the risk of food falling over their head wasn't done , as it would put into additional cost plus maintenance overheard.
3. There is always the chance that despite being double container each for their respective pet food, the pet might each others food so to take into consideration this problem we could have added a automated bin on top to close the other container but it would have introduced more complexity and cost.
4. To provide more automation certain time interval pet food could have been added but again it would bring in its own set of problems.