Step 5: Debug & Verify

Scenario	Input	Expected Output
Pet eats as expected	Clock is at 8:AM, Food bowl is 100% filled	Food should be dispensed, and the pet should eat
The pet does not eat	After the scheduled time, the food bowl weighs the same as before	The motor dispenses food, but the pet did not eat. Send an alert
The food bin is empty	At the scheduled feeding time, the food bowl is empty	Alert sent to refill the food stock
Motor fault during dispensing	The motor could not dispense food during the scheduled feeding time	An alert is sent informing of the motor issue
Overfeeding prevention	Next feed is scheduled at 1 PM. Until then, the food bowl remains empty	No more food is dispensed

Refinements & Improvements

- Adjustable alert timings — allow owner to set how long before uneaten food triggers an alert.
- Consumption history logs — track how much each pet eats over time to identify health changes.
- Redundant sensors — e.g., second bin sensor to confirm food availability and reduce false "empty" alerts.
- Remote manual override — caretaker can trigger feeding from a mobile app in emergencies.

Logic Discussion

Once the system is initialized, it takes the input from the clock and checks if it is feeding time. If it is not, the system will wait for the feeding time. Once it is feeding time, the system will check if there is enough food in stock. If

not, it will send an alert to the user indicating low food stock. If there is enough food in the stock, it will attempt to dispense food to the pet bowl. The dispenser will try this procedure 3 times in case of failure. If it fails after 3 attempts, an alert is sent to the user to fix the issue in the dispenser motor. Once the food is dispensed, it will wait for a pre-decided time and then check the weight of the bowl. If the weight is less than what it was after dispensing, it indicates that the pet has eaten the food. If not, it will send an alert to the user that the pet has not eaten the food. With this, the system will end the process and wait for the next scheduled time for the same process.

Github Repo link

https://github.com/AdiShanbhag/u3315922_Assignment1