

Automated Pet Feeder

Step 5: Test and Refine the Solution (Debug and Verify)

Manual Test Cases:-

Test for:-

- Pet eats as expected → logs “feeding successful”.
- Pet does not eat → Alerts the staff that the pet did not eat after 10 minutes.
- Food bin is empty → Alerts the staff that the food bin is empty.
- Error in the sensor → Alert the staff of the error in the sensors.

Discussion of logic:-

→ The feeder uses the clock built into it to feed the pet at set times. Before dispensing the food, the feeder checks the level of the food in the bin, and if low, an alert is sent to the staff to fill the bin. If there is a sufficient amount of food in the bin, then the servo motor dispenses the food into the pet bowl, checks the weight of the bowl, and waits for 10 minutes. If there is a change in the weight of the bowl, no alert is sent to the staff, and the feeder logs “feeding successful”; if there is no change in the weight of the bowl, an alert is sent to the staff.

System refinements:-

- Include a manual button to feed the pet with the press of a button.
- Allow the staff to customize the alerts.
- Reduce sensor checks after feeding time to save power.
- Include another sensor to check the quality of the food.