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

# Deliverable: Test outputs, discussion of logic, and system refinements.

## Sample Test Scenarios and Results

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| --- | --- | --- | --- | --- |
| Scenario | Expected Output | Actual Output | Pass/Fail | Notes / Refinement |
| Pet eats food within 20 mins | No alert; food dispensed and logged | As expected | Pass | System works correctly |
| Pet does not eat after dispensing | Alert: “Food not consumed” after 20 min | Alert sent | Pass | Accurate detection |
| Food bin is empty before feeding | Alert: “Need to fill up the food” | Alert sent | Pass | Logic triggers correctly |
| Bowl is not empty before feeding | Alert: “Food not consumed” | Alert sent | Pass | Suggest clearer alert: “Bowl not empty” |
| Battery is below 10% | Alert: “Battery replacement required” | Alert sent | Pass | System check works well |
| Feeder mechanical error detected | Alert: “Feeder is out of order” | Alert sent | Pass | Hardware-dependent |
| Dispensed amount not within ±5g range | Alert: “Incorrect amount dispensed” | Not tested | Needs Test | Add calibration and test routine |

## Suggestions for Improvement

- Improve alert message clarity (e.g., differentiate between 'bowl not empty' and 'food not eaten').

- Add automatic refill detection system if it is possible.

- Add real-time log output to app or screen for monitoring.

- Allow user override to dispense manually if the system is blocked.

- Add retry logic if dispensing fails once.

## Deliverables

- Test scenario results table (above)

- Confirmed logic paths and alerts from word coding

- Discussion of behavior vs. expectation

- Suggested refinements for system improvement