**Step 5: Test and Refine the Solution**

**5.1 Test Scenarios**

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| **scenario** | **Input** | **Expected system behavior** | **Output** |
| Food dispensed and eaten | 08:00 in schedule  Storge= 60%  Bowl 0g | Dispense 150g = after 10 min bowl weight decreases | Log: 150g dispensed, food eaten  No alerts |
| Food dispensed but not eaten | 12:00 storage = 70%  Bowl 0g | Dispense 150g = after 10 min bowl  unchanged | Alert uneaten food after 10 min  Log both |
| Bin empty | 16:00 storage = 12% | Skip dispense | Alert low food  Skipping 16:00 |
| Duplicate prevention | 08:00 already fed today = true | Do nothing | No second dispense  Log shows only one feed |
| Midnight rest | After 21:00  Feed = 00:00 | Feed today = resets | Next day feeds allowed as scheduled |

**Step5.2: system Improvement suggestion**

* Allow portion size to be adjusted if food is left uneaten.
* Let owner set custom alert times (not just fixed 10 minutes).
* Add a display showing last feeding and next scheduled feed.
* Save feeding history (time, portion, alerts) for tracking.
* Add backup battery so feeder works during power outage.
* Optional: Send mobile notification when pet hasn’t eaten.