**Step 1: Problem Analysis**

**Problem Statement:** A local animal shelter is looking for a simple and low-cost pet feeders for both cats and dogs. The feeders must dispense food on-time, and it should also monitor the amount of food that has been consumed. The shelter needs an alert system with the feeder that will let staffs know if any problem occurs.

**Features Required:**

* Programmable feeding schedule
* Dispense mechanism with proper portion control
* Consumption observation
* Alerts for any error (e.g., no dispense, no consumption, or low food storage)
* Low-cost, sensor-based design

**Assumptions:**

* Only need to dispense dry foods
* Serves one type of pet food only
* Only one feeder in each pen
* Enclosed (local) network is available for sending alerts to the staff
* Simple memory for recording past records.
* If the food storage is low, the food won’t be dispensed so enough food storage is available.

**Input:**

* Feeding times
* Food amount of each service
* Selective time for serving the food
* Time allowed for the animals to eat
* Signals from sensors (e.g., bowl weight, storage level, motor movement)

**Output:**

* Turns motor to serve food
* Send alerts to the local staffs through buzzer
* Send alerts to the everyone through enclosed network
* Stores records of previous service

**Simple Sketch of the system:**

Feeder System

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Main Controller

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Motor Sensors Alerts

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 Food Data Alert notification