**Step 1: Understanding and Defining the Problem (Analysis)**

* **Goal:** To develop an automated pet feeder that dispenses food according to a schedule, monitors food consumption, and alerts staff if any issues occur.
* **Constraints:** Must be implemented using low-cost components like a servo motor and sensors while being reliable.
* **Key Questions:**
* How many types of pet food are being used?
* What are the sizes for the various pet food types?
* What is the feeding schedule and is it the same for both cats as well as dogs?
* What is the threshold for the Pet Feeder being full? (e.g. weight, level etc)
* How often should checks happen?
* What user alerts are needed?
* **Assumptions:**
* Buzzer to be used for alerting staff
* Only one type of pet food is used
* Limited memory and low-cost components (Arduino, servo motor, sensors)
* **Inputs:** Clock Time, Feeding Time, Food Level Sensor, Food Weight Sensor
* **Outputs:** Servo Motor, Buzzer
* **Block Diagram:**

