**Part 1: Problem-Solving Process**

**Step 1: Understand and Define the Problem**

**Problem Statement:** Make a cheap, programmable automated pet feeder for an animal shelter nearby. The system needs to keep track of how much food is being eaten, give meals at set times, and let staff know if there are any problems.

**Assumptions:**

* Just one kind of pet food is used.
* The system can be used by both dogs and cats.
* It has limited processing power and memory.
* Runs indoors with power availability.

**Inputs and Outputs:**

* **Inputs:** Schedule for feeding, status of the system, sensor for the weight of the bowl, and sensor for the level of food.
* **Outputs:** Status logs, alert messages, and servo motor activation.

**System Sketch:** A block diagram would include:

