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Masters in Business Informatics
4478 Introduction to Information Technology Assignment 1

Step 1: Understand and Define the Problem (Analyse)

Problem statement, assumptions, input/output,sketch block diagram of the system

Problem Statement : A local animal shelter is currently facing challenges in ensuring timely and accurate feeding of their cats and dogs. Staff of the animal shelter are often preoccupied with other responsibilities which often lead to missed schedules for feeding. To improve overall efficiency and animal welfare there is a need to create a low cost programmable automated Pet Feeder System.

Goal of the Automated Pet Feeder System : Automate feeding of cats and dogs based on scheduled times and food consumption status, alerting staff to any food consumption issues or food dispensing issues.

Key features of the system include :

- Dispense of food for cats and dogs at scheduled times
- Monitor whether food has been consumed or the amount of food that has been consumed.
- Alert staff on issues regarding food dispenses or if food is not eaten

Assumptions :

1. Feeding Schedule
    a. Dogs and cats have the exact same feeding time which is pre assigned in the system
    b. Feeding occurs twice daily at fixed times : 8AM and 6:00PM
2. Food Consumption Monitoring
    a. Weight Sensors are available to detect food consumption
    b. Weight is logged from food dispensing time and 10 minutes after food dispensing.
3. Alert System
    a. A red alert is triggered when one of the following happens :
        i. No food is dispensed during a set time
        ii. Food is dispensed but pet did not eat
        iii. Pet is not present near the feeder
4. Feeder Types
    a. There are two types of feeders
        i. One for cats dispensing cat food
        ii. One for dogs dispensing dog food.
    b. Each of the feeder follow the same decision logic and alters just a different type of food is dispensed
5. Identification and registration
    a. Only registered animals at the shelter are eligible for automatic food dispensing
    b. There is a sensor in the feeder which indicates if a pet is currently present

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Inputs :

- Real time clock - current time
- Feeding time (8AM and 6:00PM)
- food level sensor in container
- bowl weight sensor - weight under bowl to check if animal has already eaten food,
- Food dispensed status
- Food consumption status
- Pet presence detection through sensor

Outputs :

- Motor rotation - ON/OFF
- Green Light, no alert - Successful feed
- Red Light, Alert - No food dispensed, pet did not eat, pet not present
- Feeding log entry

Block Diagram Simple Sketch