

# UNIVERSITY OF CANBERRA

## INTRODUCTION TO INFORMATION TECHNOLOGY (4478/8936)

### Assignment 1: The Solving Problem Process.

#### **Part 1: On the solving Process**

##### **Step 1: Understand and Define the Problem (Analyse)**

###### **Problem Statement:**

A local animal shelter wants a low cost, automated pet feeder machine that dispenses food at scheduled times for both dogs and cats. This machine monitors the staffs whether food has been eaten and alerts if problems occur like no food dispensed or food left uneaten by the pets.

###### **System Requirements:**

- **Feeding:** Dispense food twice a day on 8:00 and 17:00
- **Monitoring:** Detect whether food has been consumed using sensors.
- **Alerts:** Alert the staff if the food is not eaten or the dispenser fails to give food.
- **Cost-effectiveness:** Build on low price components like servo motors and basic sensors.
- **Simplicity:** The system logic should be easy to maintain on inexpensive hardware and naive users.

###### **Assumptions:**

- ❖ The system supports only one type of dry food for both cats and dogs.
- ❖ Pets are fed at fixed times 8:00 and 17:00
- ❖ The shelter staff must refill the food container daily.
- ❖ Indoor environment. Therefore, weather conditions are not an issue.
- ❖ Only one food bowl is shared for one scheduled feeding session.

###### **Inputs and Outputs:**

- ❖ **Inputs:** Current time, food bin level (sensor), bowl weight (sensor).
- ❖ **Outputs:** Dispose food (servo motor rotation), alerts (alerts to staff).