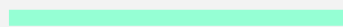


All-In-One (AIO) Pet Feeder



Assistive Technology

Alicia McFarlane, Tuong Nguyen, Raphael Umali

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The Problem

What problem does the AIO Pet Feeder solve?

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The Product

Introduction of prototype design

The Details

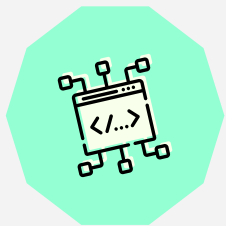
Detailed explanation of features + costs

03

04

The Demo

Live demo with pasta to mimic dry pet food

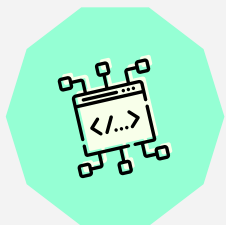


01

The Problem

Hear us pitch our target audience's problem!





02

— The Product

Introducing the All-in-one
(AIO) Pet Feeder

Inside View

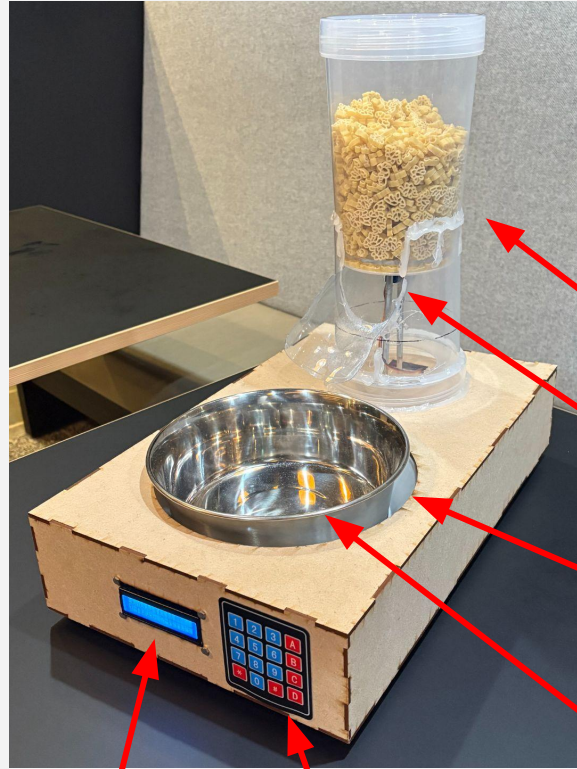


Buzzer

Load cell amplifier

Uno R3

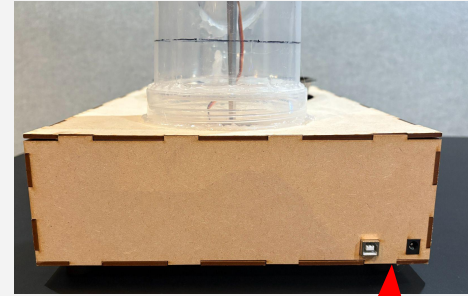
Isometric View



16X2 LCD

4X4 Keypad

Back View



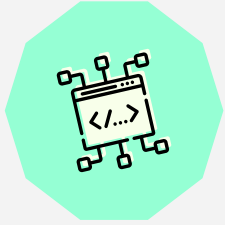
2L food tub

IO ports

SG90 servo motor

3D-printed holder

Steel dog bowl



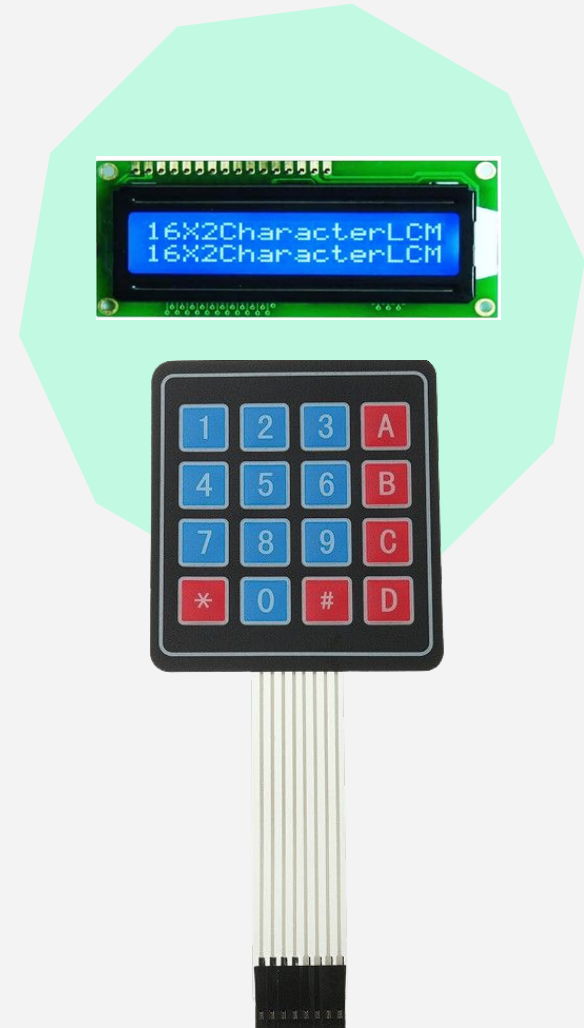
03

— The Details

Summary of product operation
and cost breakdown

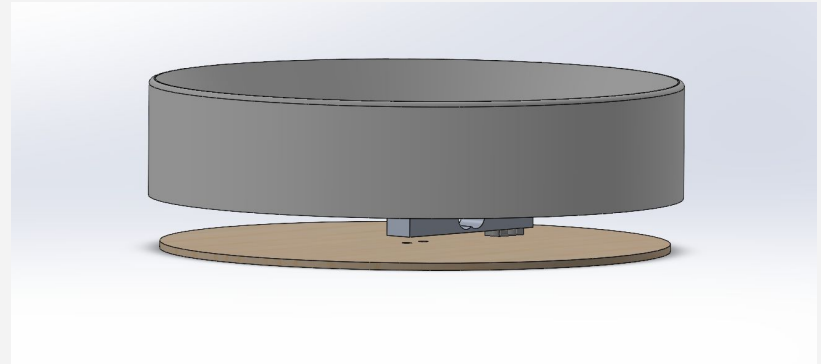
User Interface (UI)

- Simple UI operated by 16x2 LCD and 4x4 keypad.
- UI menus are implemented using FSM, controlled with Uno R3 microprocessor.
- Users can adjust settings and view system information.
- Microprocessor ports accessible without disassembly, allowing easy powering and updating system.



Manual Feeding Mode

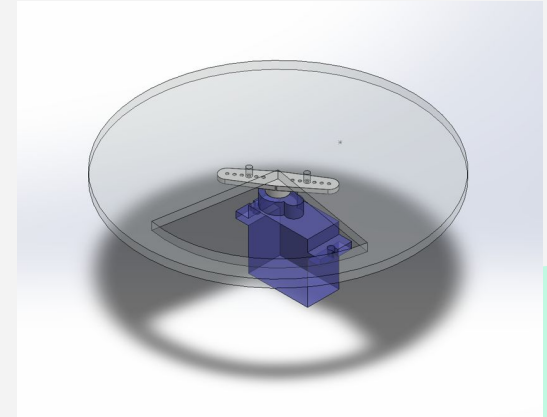
- Manually feed pet with built-in weighing scale and reminder system with buzzer.
- Set feeding intervals (hh/mm/ss) in UI.
- Allows pet owners to feed pets a controlled, varied and healthy diet, rather than just kibble.



Scale apparatus with 3D-printed bowl holder (top), 1kg Load Cell (middle), and 6mm MDF base (bottom)

Automatic Feeding Mode

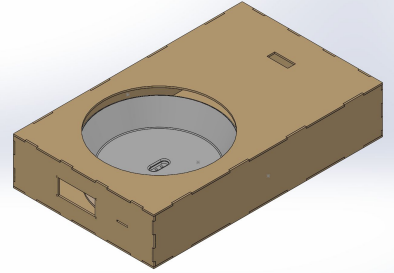
- Automatically dispense dry pet food into bowl from holder via servo motor action.
- Air-tight, food-safe holder easily accommodates 2L of dry food.
- Set feeding interval (hh/mm/ss) and target food weight (g) in UI.
- Dispensing is done in gross and fine control stages with feedback from weighing scale submodule for accurate dispensation.



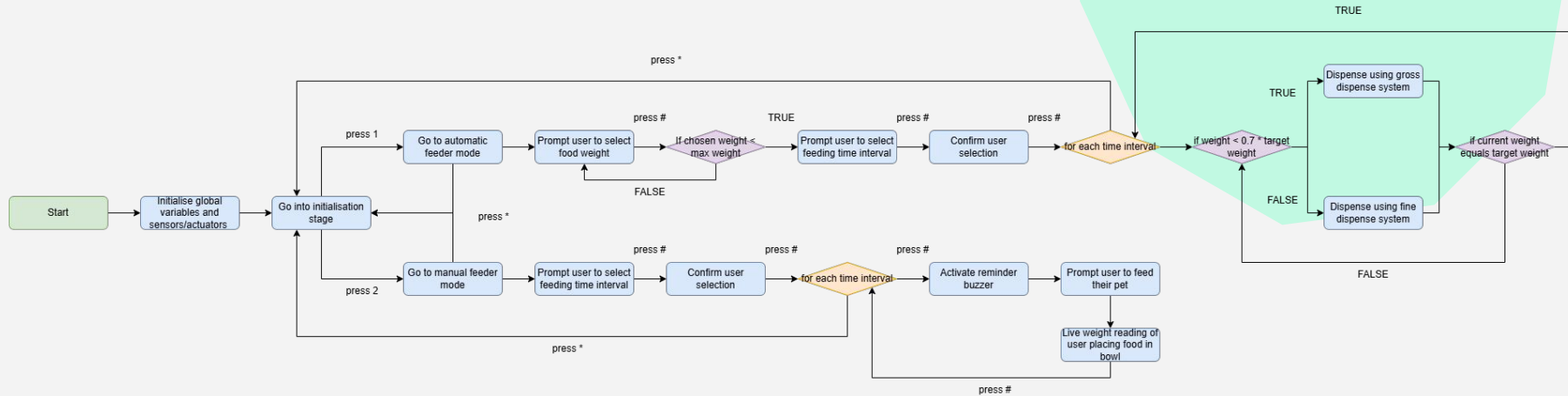
SG90 servo motor with horn and acrylic attachment with dispensing hole

AIO Pet Feeder Enclosure

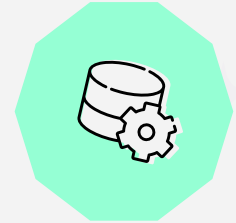
- Robust and portable design
- IO ports accessible from the back to plug into wall
- Dog bowl fits snugly inside the hole with a very small gap - debris won't make its way inside enclosure
- Bowl-shaped holder prevents dog bowl from moving when pets are eating



AIO Pet Feeder FSM



— Production Costs



Component/material	Cost
<u>Uno R3 Microcontroller</u>	\$10.30
<u>Piezo Buzzer</u>	\$0.46
<u>16x2 LCD</u>	\$5.78
<u>4x4 Keypad</u>	\$3.15
<u>SG90 Servo Motor</u>	\$2.90
<u>1kg Beam Load Cell</u>	\$5.20
<u>Load Cell Amplifier</u>	\$4.40
<u>Load Cell Screw Kit - M4</u>	\$3.20

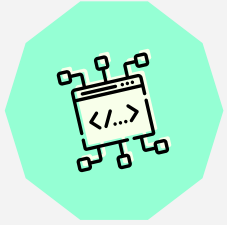
Component/material	Cost
<u>2x 2L Round Food Container</u>	\$4.50
<u>Stainless Steel Pet Bowl</u>	\$5.00
<u>3mm MDF Panel 900 x 600 mm</u>	\$5.90
Nuts and screws	negligible
3D printing material	negligible
Extra components (wires, resistor, breadboard, etc)	negligible

Estimated Total (per unit): \$50.79

Market Comparison

- Cheapest automatic pet feeders are \$60–80, but are not feature rich (no LCD, manual capabilities, weight measurement for feedback).
- Easily increase material budget to compete in enclosure quality and food capacity.

			
Anko Automated 5L Pet Feeder	Arlec Automatic Pet Feeder	i.Pet Automatic Pet Feeder	i.Pet Automatic Pet Feeder 9L
\$89.00	\$62.00	\$72.95 \$187	\$82.95 \$173
 Kmart	 Bunnings Warehouse...	 Chemist Warehouse	 Chemist Warehouse
Free delivery	and 4+ stores	and 10+ stores	and 10+ stores
	4.1 ★★★★★ (22)	Free delivery 4.0 ★★★★★ (16)	Free delivery 4.5 ★★★★★ (15)



04

The Demo
