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Kampus Sungai Petani

Faculty of Administrative
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MEOW-MEOW FOOD DISPENSER USING INTERNET OF THINGS (IOT) PROGRAMME

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ABSTRACT

This project is about a pet feeding machine where the feeder automatically feeds the pet according to the command made by the owner via a mobile phone. This project set up is controlled by a mobile app where the command is to feed the cat or not. The cats at home can get food and owners can supervise the pet feeding time using the mobile app to always ensure the cat is fed especially when the owner is busy. The food for the cat is stored inside a box or storage. The food would be served to the cats based on the amount specified by the owner to feed the pets. It is a smart idea to prevent cats from hunger if no one is at home. The cost of taking care of a cat is reduced due to the launch of such device in the market. Such idea is getting popular globally due to the automatic system and mobile app involvement. The other factor is due to the ease to operate the device to feed the cat. Besides that, the device was also installed with a camera in order to monitor the cat's condition. By adding a camera to the device, the owners will know their cats' health conditions so if there is something wrong with their cats, the owners can respond fast.

Keywords: cat, pet, food dispenser, IOT

INTRODUCTION

Feeding the pet is the most important job when someone has a pet. If the owner does not take care of the pet's diet, the pets will have a digestion problem making the pet sick. This is the main factor why we embarked on this Meow-Meow Food Dispenser project. According to the online news [1-2], the pet owners do not have time to feed their pets because they have to go to work. Hence, with this project the pet owner is able to feed the pet wirelessly, so the pet does not starve to death. This project is the improvement of the original project by adding the Internet of Things (IOT) programme, which is Blynk to enable the feeder to control wirelessly. This project also focuses on making the owner schedule the pet feeding time so that the pet's health is being taken care of [3].

The idea of this project is based on five other successful projects as a reference. The five projects are IoT Pet Feeder by Circuit.io team [4], IoT Pet Feeder by Ntrobotics [5], Google Assistant controlled Pet Feeder by IoT DESIGN PRO [6], Automatic Arduino Pet Feeder by Techpins [7] and Automatic Pet Feeder by Pankaj Khatri [8]. All these projects used Arduino as a microcontroller to control the circuit by programming the Arduino with appropriate coding. Projects by Techpins and Pankaj Khatri only use Arduino as the medium to control the feeder to feed the pets while the projects by Circuit.io team, Ntrobotics and IoT DESIGN PRO used mobile applications such as Freeboard, Blynk and Adafruit respectively to control the feeder wirelessly making the owner able to feed the cat even if he/she is not at home. In

order to control the feeder using mobile application, the ESP8266 component is being used because this component's function is to connect to the Wi-Fi. The information made by the owner via the mobile application is transferred via Wi-Fi and the signal is being received by ESP8266. Arduino receives input from ESP8266 to produce the desired output, which is the pet's food being transferred to the pet's bowl so that the pet can eat.

METHODOLOGY

System Diagramme

Figure 1 shows the system diagramme for Meow-Meow Pet Feeder. The system of this device starts with the command from the mobile device to 'feed the cat'. When the owner gives the command, the programme will start the servo motor which holds the food, turns 180 degrees, dropping the food and being hold by the bridge and turns back to its position. If the quantity of the food in the storage is low, the device will send a notification to the owner's mobile device.

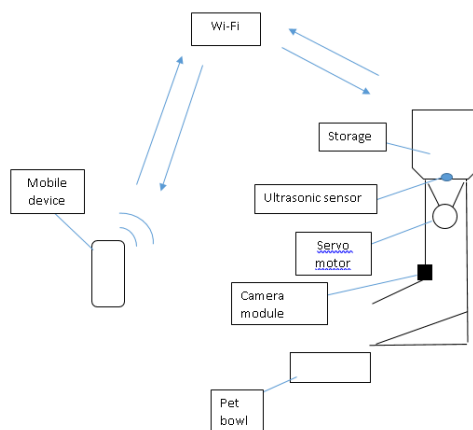


Figure 1. System diagramme of Meow-Meow Pet Feeder

FLOW CHART

Figure 2 shows the flow chart of the programme. Firstly, an ultrasonic sensor was used to detect when the food in the container is running out. The sensor will give response to the microcontroller and notify the owner that the food in the container is running out. A camera module is used for the owner to monitor the pet's condition. Next, The NodeMCU ESP8266 connects to the Blynk server via Wi-Fi router, the module then controls the servomotor and provides feedback to the Blynk app [9].

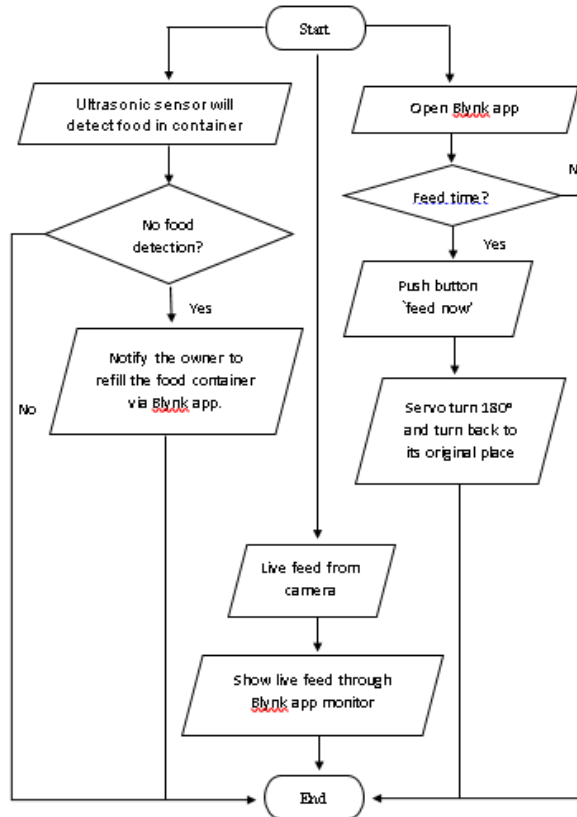


Figure 2. Flowchart of Meow-Meow Food Dispenser

RESULT

Figure 3 shows the Ultrasonic Sensor that has been attached to the NodeMCU for food detection and Blynk app layout on the right side shows the functionality of the project. As shown in the figure, the Ultrasonic sensor did not detect any food in the container. Hence, the Blynk app notified the owner by displaying “Refill Pet Food!”.

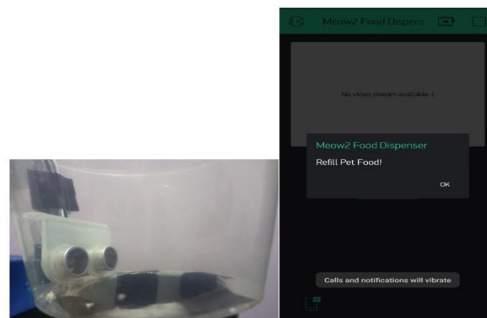


Figure 3. Ultrasonic Sensor of Meow-Meow Food Dispenser and Blynk

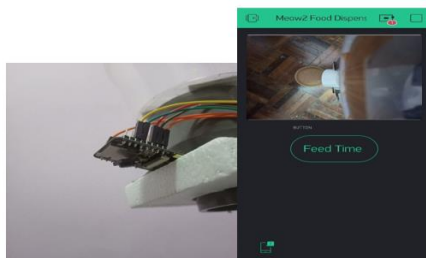


Figure 4. ESP32 Cam of Meow-Meow Food Dispenser and Blynk

Figure 4 shows the ESP32 Cam that is connected to the Arduino Uno using Wi-Fi to show live streaming in Blynk layout as shown in the figure on the right.

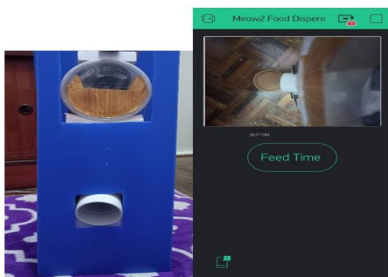


Figure 5. Servo Part of Meow-Meow Food Dispenser and Blynk

Figure 5 shows the servo part that will turn 180 degrees when the owner pressed the “Feed Time” button in the Blynk layout and dropped the food into the pet container.

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