GEBZE TECHNICAL UNIVERSITY

CSE101

ARDUINO PROJECT REPORT

GROUP 2

FEED THE CAT – GROUP 2 ARDUINO PROJECT

INTRODUCTION

The project is based on Arduino titled "Feed the Cat" and it allows us to feed our pets remotely via a web application. It is very simple and effective ways of managing pet feed schedules along with feeding options. The system uses a button on the application interface, which enables us to feed our pets with just one click.

Link to our demo video

PURPOSE OF THE PROJECT

The objective of the "Feed the Cat" initiative is to automate feeding of pets with the technology. This system is based on an Arduino unit and its components, which allows users to feed their pets using their web application. The application interface contains a button, which when pressed, will dispense food out of a tube that deposits it directly into the pet's food bowl.

Moreover, the user can set up the quantity of food (in grams) to dispense and see stats about the feeding history along with the time and amount of the food given. The whole point of this project is to make things simple regarding the pet care, manage the consistency of their meal time schedule, and better maintain records about the mode of feeding that we use to manage our pets' diets.

HOW DOES THE FEEDER WORK?

Web Application Interface

It takes a button press to enter into action once that application is opened. By pressing this button, the system will release food. Also, the application allows users to set the duration the door is open for. In addition, it records the total amount of food dispensed every day, which helps to know how much food the users served to their pet.

Food Dispensing Mechanism

Once the button in the application is pressed, the command is sent from the web application to the Arduino to actuate a servo motor that operates the food dispensing mechanism to release that selected amount of food through a tube directly to the pet's bowl. It is a highly reliable system with very accurate portions released every time.

Data Logging and Analysis

The amount of food served, as well as the time of service for each feeding, is detailed into the system. The C program also gives and displays the daily summary such as food served in total and average feeding quantity by providing such a facility for the users to keep a very good track of their pet's feeding pattern.

Hardware Components

The major hardware components used in the project include a servo motor, which is used to control the food dispensing mechanism by allowing food to be accurately poured from the tube into the pet's bowl. The Arduino(we used ESP32 because it’s besically an Arduino with a Wi-Fi card built-in) is the main controller responsible for ensuring communication between the web application and the hardware. The wiring and connections are established by means of a micro USB cable and jumper wires, while a breadboard provides a convenient platform for assembling the circuit. The ESP32 is used for wireless communication, which would be very helpful for seamless interaction.

PROBLEMS WE HAD TO OVERCOME

In the original project, we used Matter protocol to control the system, that meant that users could feed their cats from their phone's built-in apps such as Apple Home or Google Home. So it was going to be a more simple experience and all was going well but when we tried to use our system at school, the Matter protocal(for some reason) did not like our school network, we tried using hotspots but there were unreliable, it'd connect and disconnect for whatever reason. It's still doable but in order for us to demo it at school we had to change course and settled with a web app instead.

Physics part was also a little bit hard, the cat food would get stuck, we solved this buy sticking up a stick to the bottom of the door to stir the food up while the opens and closes

CONCLUSION

The "Feed the Cat" project successfully combines modern technology with automation to provide a convenient and efficient solution for pet feeding. Using the Arduino platform, the servo motor, and a web application, this system makes it possible to feed the pet properly with control in terms of proper quantity whereby owners can control and track the daily intake. Furthermore, the system comes with wireless communication between the hardware and the application which makes it user-friendly. In addition to feeding valuable data logs and updates on feeding, this project makes feeding simpler with a more professional management level of the pets' diets, and pets will always have regularity and quantity assurance when feeding.

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