



SMART HOMECARE MACHINE

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ABSTRACT:

Pets have become an integral part of most people's lifestyle. It is necessary to feed the right amount of food and water to pets timely for their healthy life. When people leave their home it is important to take care of the pets and elders. This project has been proposed as a way to provide for both pets and elders. It mainly consists of two parts. Part one involves feeding food to pets and part two helps in giving correct medicine for elders during morning and night as prescribed by doctors.

This machine can be operated on real time and can be controlled over phone. With internet access the machine can be controlled from anywhere in the world. The pets can be trained to intake food with the help of the machine and elders can be reminded of their medications by the machine. By providing food timely to the pets problem of obesity can be avoided. Due to this the pets are eating healthy amount of food and elders are able to take their medications at appropriate times.

We have concluded that the pets are able to create an awareness of food taking schedules due to the presence of the machine. This helps in significantly improving the health of the pets. Elders are also more aware about medications as the machine acts as a reminder for them. This will ensure that the elders don't miss out on their medications.

This also helps in controlling wastage of food while feeding pets and preventing side effects of eating wrong tablets.

KEYWORDS:

PET FEEDER, MEDICINE DISPENSER, PETS, REAL TIME, SERVO.

INTRODUCTION

Automated technology is popular right now and is simple to use, easy to monitor, and easy to access. Machines can automate autonomously, but the Internet of Things (IoT) may improve automation by adding monitoring and controlling functionalities. Our lives are now significantly easier thanks to Internet of Things applications. Everything became automated and intelligent. This project aids in the automation of smart homes.

Giving food to pets and caring for the elderly have become challenging tasks in modern times. By giving our elderly and dogs their food and medications on schedule, we need to focus more on their health. However, we neglect to pay care to our pets and the elderly people in our house because of our hectic schedules or when we are away. The 'Smart HomeCare Machine' introduced in this article tackles the aforementioned problems by ensuring that pets are fed on a regular basis and that seniors receive the

proper medication at the appropriate time.

As we've already mentioned, this system is automated and can eat at the time we specify. On the basis of the time we set, it also delivers medicine. And it releases the appropriate pill for the elderly to take in the morning and evening. It is a device that will automatically feed our pets and administer the appropriate medication to seniors even when we are not there.

A) AIM

The purpose of the suggested design is to offer elders a dispenser machine to give them the appropriate tablets at the appropriate time and an automatic pet feeder for animals when their owners are not around to feed them.

The pet feeder or animal feed systems may be made to work automatically, enabling the user to provide food anytime they choose from any location via the internet. On

the other hand, it dispenses the appropriate pill for seniors, aiding in the management of the negative consequences of taking the incorrect tablet at the incorrect time. Not just for seniors, but also for ignorant and illiterate individuals.

Sensors are used in systems to entirely automate the feeding process with minimal human involvement.

B) OBJECTIVE

The owner can designate the right amount of food and medication for their pets and elderly relatives, accordingly. This research aids in reducing food waste while feeding dogs and adverse consequences from taking the wrong medications.

The creation of an automatic pet feeding device is the major goal of this project. The user may construct a dispenser that delivers the right tablet at the right moment for seniors or schedule the feeding time for their pet using their phone.

- To feed your pet wholesome, clean food.
- No food is wasted
- Lessen the impact of taking the improper medication.

C) RELATED WORKS

We found that feeding pets when we are not at home is a major problem. so we started a survey on the following literatures.

According to Nan R. W. Lewis in "Pet feeding system" [1], his invention relates generally to pet feeding systems and more specifically to pet feeding systems for multiple pet households. The invention restricts access to food in a pet feeder to situations in which a transceiver placed inside the feeder detects a specific signal. The current invention, which was patented on 2002-02-26, provides a pet feeding system that prohibits all family pets from consuming food that is not intended for them while allowing only the intended pet to access food kept in the dish designed for that pet.

According to Morosin Rose Chan's article, "Automated pet feeder" [2], an automated pet feeder is one that enables portions of pet food to be inserted into holes in a rotational food bowl and to be made available to a pet at scheduled feeding times. Above the bowl is a cover with a hole for revealing one of the chambers. The bowl is supported by a base unit that can spin the bowl while keeping the cover in place and track the bowl's location, according to a 2005-03-31 patent.

The pet feeder consists of a base, a feeding bowl with pie-shaped compartments, a timer module, a bowl cover, a handle to bowl cover, and a locking mechanism to keep the entire device in place, according to Krishnamurthy S. in "Automatic pet feeder" [3]. This invention pertains to an automatic training and feeding system for pets that also serves as a playmate while the owner is away or otherwise occupied. It has a toy holder that, when activated by an ejector, launches a toy into the air a certain distance. The

2005-03-31 patented toy holder is triggered by a spring coupled to a spring tension and a revolving shaft activated by a motor controlled by microprocessors.

In "Internet controlled pet feeder" [4], Alex Jon Stoney makes the following suggestion: The innovation offers automated, multi-meal pet feeding equipment for use by pet owners and carers. These devices may have a communications module for connecting to a communications network, such the Internet, so that the pet feeder's operations, including feeding schedules, may be programmed or otherwise managed from a distance. The devices may additionally feature an integrated digital camera, with or without a microphone, to enable remote monitoring of a pet's feeding activities and surroundings.

In "Remote controlled movable pet feeder device," Johnson Goh [5] proposed: A pet feeder device whose movements and dispensing/feeding times can be remotely controlled by a software application on a computing device, comprising: a wireless transceiver configured to send and receive data packets over a wireless network; at least one food storage compartment; a food dispensing port configured to provide access to the at least one food storage compartment; a locomotion sensor; and a loc Published on June 14, 2018.

MATERIALS AND METHODS

A) HARDWARE USED

- 1) Micro-controller (ATMEGA328P)
- 2) Real time clock (DS3231)
- 3) Ultrasonic sensor(HC-SR04)
- 4) Servo motor
- 5) Bluetooth module (HC_05)
- 6) Voltage regulator
- 7) 12V DC adopter
- 8) Jumper wires

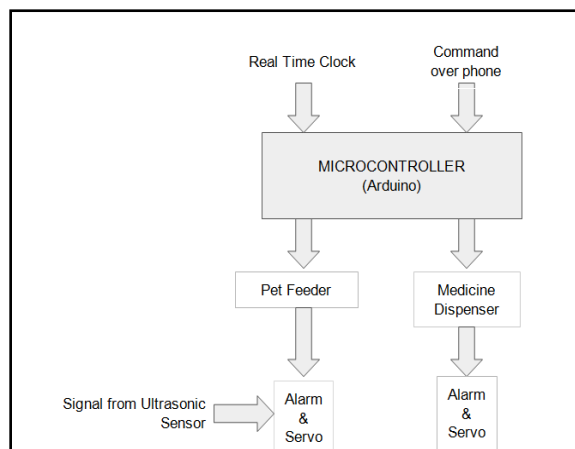
B) SOFTWARE TOOL USED

- 1) Arduino IDE

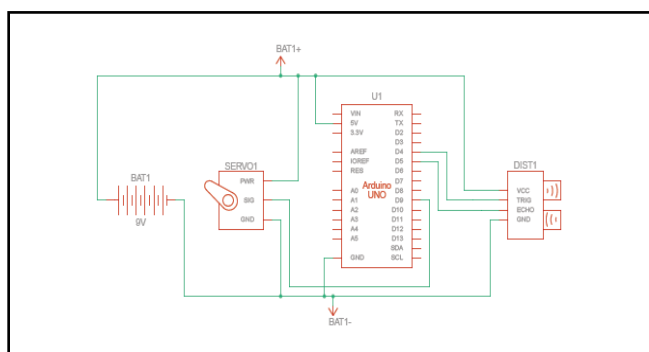
C) PRINCIPLE

When the real time matches with the time we entered in the code, the Arduino Uno gives signal to the ultrasonic sensor and then it starts detecting the distance of pet. When the distance is less than entered distance the feeder begins to feed. Likewise the medicine dispenser also triggered when it receives in signal from Arduino.

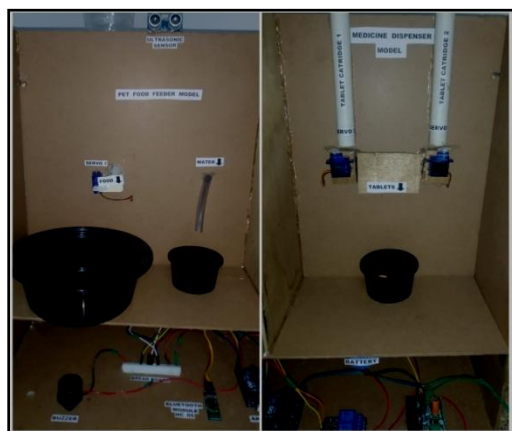
D) BLOCK DIAGRAM



E) BASIC CIRCUIT



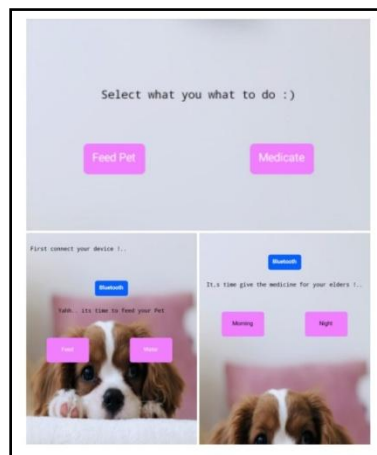
F) WORKING



The Arduino is the main controller we used for this project. It receives signal from the Real Time Clock or from Bluetooth module. When the signal is received or the real time is equal to the time we set in the code. It makes the buzzer to ring. For feeder model after the buzzer ring the Ultrasonic sensor gets triggered and starts detecting the distance. If the distance is less than 50cm (i.e. the pet get near to the machine) the servo got triggered and the food is feed. For medicine dispenser after the buzzer the tablet is dispensed by the servo as we set.

This is also controlled from mobile using wifi or Bluetooth. For that it works based on the signal it received from the

device we connected.



The above figure shows the app created by us to control the feeder from mobile. It have commands like feed, water and medicate elders.

EXISTING SYSTEM VERSUS PROPOSED SYSTEM

A) EXISTING SYSTEM

In the existing system, the feeder is automatic. But it feed on time. Even there is no pet to eat food. And there is system to feed when the pet came near to the machine. But what if the pet reach machine randomly or eat more food than usual.

B) PROPOSED SYSTEM

In our proposed system, the feeder only feed in time and only when the pet is available near the device. It does not feed on other time unless we control it using our phone. By this we can reduce wastage of food and make our pet healthier by giving limited food. And we can easily keep the place cleaner and hygiene.

RESULTS

This project brought together several components and ideas to achieve a common goal that is design a **“smart homecare machine”** using Arduino Uno. The key components of the project include a distance sensor to detect or identify the presence of the pet i.e. whether the pet is near the bowl or not and a servo motor which will be programmed to serve the food as soon as the pet comes closer.

The other two servo motors deliver the correct tablets to the elders at time. It relieves the owner from having to feed his pet multiple times a day and worrying about giving medicine to their old parents when they are not at home. The proposed project senses the presence of the pet using the distance sensor and serves accordingly. The owner does not have to worry about making plans or feeding his pet because of this automated pet feeder. This smart home care machine serves as a helping hand as it works efficiently in the absence of the owner and can be easily controlled using mobile phone.

A) FUTURE SCOPE

- RFID based food serving, different food for

different pets.

- Automatic cleaning of plates to bring more hygiene.
- Machine to deliver tablets for patients in hospitals who are supposed to eat in a large numbers.
- Improvements in feeder and it can monitor the health of the pet also.

CONCLUSION

The theory behind the project is to maintain the health of pets and elders of our home by making sure they are fed and medicate on time, maintaining the hygiene and quality of the food being served without wastage and medicating elders with right tablets. The concept design was considered based on a thorough literature review of previous papers and research about the context of IoT, Arduino, and Raspberry Pi based Pet Feeders. This provides enough information to achieve the first objective of the project which is constructing the prototype for a feeding machine (feeds pet food and medicine). For project demo concern, we have developed a prototype module.

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