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IOT BASED SMART PET CARE SYSTEM

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Abstract: Pet ownership is soaring each year. People love their pets and vice versa, but taking care of pets when you are not at home is a problematic issue .so the demand for high quality pet care products are increasing. In this paper we aim at designing a pet day-care robot that can monitor as well as feed the dogs or cats in a timely manner. The Robot is an IOT Based robot that is capable of taking care you your pets alone at home. The robot is integrated with a camera that allows for live streaming over IOT platform to get on demand footage of home. The robot dispenses appropriate amount of food and water in feeding tray as instructed by user online .This entire system is controlled by a raspberry pi controller that allows for efficient controlling of all robot functionalities .The data collected from each sensor are processed and displayed on a smart phone application .Thus, pet owners through only one single interface can obtain all the information regarding pets' food conception, water conception as well as defecation timing, duration and frequency .Additionally, a controlling function is also enabled in the application for pet owners to dispense food at any time and anywhere .The robot is also integrated with a speaker that speaks out to your dog's/cats allowing you to warn them for any wrongdoings or call them when it is feeding time

Keywords: Android Application, Robot, Raspberry pi, Surveillance.

I. INTRODUCTION

With the increasing demands for life quality, the Internet has been spreading into every corner of people's daily life for decades. In recent years, thanks to the Internet of Things (IoT) technology, there has been a tremendous transition in people's lives, and we have stepped into an era when a broader range of objects are connected rather than just between computers or mobile phones. By "connecting the unconnected", IoT has made it possible to sense and control the physical world by making objects smarter and connecting them through an intelligent network. The present research is a pet day-care robot that can monitor as well as feed the dogs or cats in a timely manner. The Robot is an IOT Based robot that is capable of taking care you your pets alone at home. The proposed system integrated with internet for efficient use. The purpose of this research is to apply lot technology to combine different smart devices, facilitating pet owners with one single Smartphone application for controlling the pet care robot and monitoring their pet's behaviour. More specifically, the collected data records pet's behaviour of daily feeding, drinking, and defecation, therefore any abnormalities can be a sign of potential illness. The device can be controlled from anywhere and anytime using mobile application or website. Camera is provided for the live monitoring of pets and the surrounding. Real-time smart food level monitoring via the app. Rechargeable battery is provided and it can also work with direct power. We can control the robot online over internet and move through your house. The system is also integrated with a speaker, so the user can talk to the pets. The present paper is organized as follows: Section II studies several related works and the motivation that generates the present research. Section III presents the overview of the pet day-care robot.

II. LITERATURE REVIEW

In the pet care market, there have been numerous smart devices applying IoT technology to satisfy various pet care needs. By studying the smart pet care products, we find that among the food feeder, water dispenser. the most advanced and mature applications of IoT technology is the smart pet feeder, which usually contains functions such as automatic feeding controlling, real-time monitoring or consumption reporting [1].

The Our Pets water fountain is one of the few drinking devices that could display the drinking frequency and duration on the Smartphone. However, there is no recording of the exact water-consuming situation in the mobile application[2]. The implementation of Smart Home Controller wherein the user can control their devices using the Android Application running on a Smart Phone. The system employs client server architecture and Internet of Things (IOT) for communication.

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The controller is designed with the Arduino microcontroller (Node MCU) at the consumer end and is connected to the internet through Wi-Fi [3].

Using of ultrasonic sensor to get pet foods scale on real time. When the dc servo motor runs, the motor rotates the propeller which is in the feeding device. Real time food to the animals and monitor the animal's behaviour. The IOT based automatic pet food feeder uses ESP-32 CAM camera module, ultrasonic sensor, motor control module and consist of an interface with dc servo motor and other hardware equipment. A software code is dumped into the microcontroller to perform operations of ultrasonic sensor, rotating motors. The whole feeder system is controlled using a mobile phone. ESP32 –cam to get video input to web application and could watch the behaviour of the pet. the user sends signals to the microcontroller using mobile application through cloud [4].

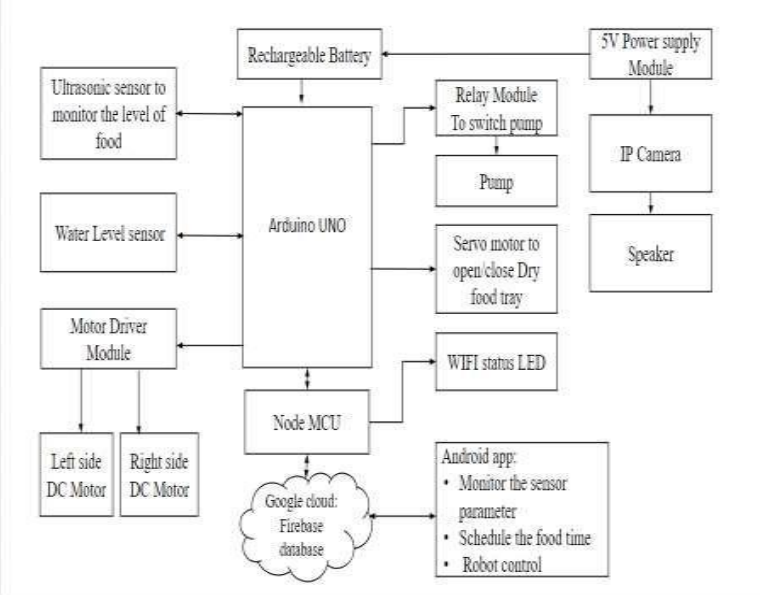
III.EXISTING SYSTEM

Automatic food dispenser is available without water dispenser. Only dry food can be provided. the feeding process is based on preprograming. It can hold up to 3 litre of dry food. the dispensing of food is based on gravity. The main con is that there is no monitoring of pets .it does not have internet connectivity for working and there is no rechargeable battery

IV. PROPOSED SYSTEM

The proposed system integrated with internet for efficient use. The device can be controlled from anywhere and anytime using mobile application or website. Camera is provided for the live monitoring of pets and surroundings. The real time smart food level monitoring is done by the app. A rechargeable battery is provided and it can also work with direct power. We can control the robot online over internet and move through your house. The system is also integrated with a speaker so user can talk to the pets

V. OVERVIEW



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VI. PROS AND CONS

The main pros of this system, it has remote monitoring of pets. there is an dc motor which helps the robot to move through the house for navigation . it has automatic food dispenser and water dispenser. A rechargeable battery is used. Through mobile app or web app, controlling become easy. there is a speaker for voice communication with pets. The main cons of the system is that it cannot clean the mess made by the pets and there is no anti falling security. If the internet connection goes down monitoring of pets is not possible.it does not have auto navigation and automatic charging.

VII. CONCLUSION

To conclude the present paper implements an IoT based pet care system applying several sensors and actuators on four devices (food feeder, water dispenser, navigation part and camera monitoring). The food feeder subsystem contains functions such as instant and remote food dispensing and food consumption monitoring. The water dispenser can monitor water, consumption. The camera can be used for monitoring the pets and control the robot online over internet and move through your house many times you want.

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