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Automatic Pet Monitoring and Feeding System Using IoT

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ABSTRACT: Pets need special treatment and special care. Due to nowadays busy life style, this task is not as simple as it used to be. The goal of this work is to introduce, design and implement a smart pet system. The interaction between human and physical devices and devices in the real world is gaining more attention and re-quires a natural and intuitive methodology to employ. According to this idea and living well, life has been a growing demand. Thus, how to raise pets in an easy way has been the main issue recently. This study examines the ability of computation, communication, and control technologies to improve human interaction with pets by the technology of the Internet of Things. This work addresses the improvement through the pet application of the ability of location-awareness, and to help pet owners raise their pet on the activity and eating control easily. Our study not only presents the key improvement of the pet monitor system involved in the ideas of the Internet of Things, but also meets the demands of pet owners, who are out for works without any trouble. The objective is to allow pet owners to automate simple things, like monitoring, and feeding controls. Implementing smart pet houses will assure pets owners an increased comfort and peace of mind especially when pets are unattended.

KEYWORDS : Internet of Things, Pet feeder, Smart pet system.

I. INTRODUCTION

Our project is automatic pet monitoring and feeding system using Internet of Things. The emphasis on choosing this as the title is because, to initially give solution to a problem faced by almost everyone. Human interference on the part of taking care of pet when they are busy is difficult. And hence our system will be efficient enough to overcome the hurdles faced by human in taking care of pet. This Pet care System is complete equipment for monitoring all the pet activities and also by making the pet feel free. Furthermore, the project is subdivided into several modules each of which has the IR unique feature. They are pet monitoring door, pet food feeder and pet collar system.

The objective of this project is to create an automatic feeding machine for pets feeding. This project is designed keeping the view of dairy farms, poultry farms and pets at home it is important to maintain the diet of animals just like human being from keeping them healthy for better production and good quality of milk in the case of dairy farm and eggs and chicken in the case of poultry farm. Now a days, everyone can have a pet at home without giving their full commitment to have a healthy pet. With this feeding machine, it will help pet owner to manage their pet diet wheel. When user is at home, it can be controlled by a mobile application through internet. If user is not at home, user can set the timer to feed their pet. To make sure that the food does not exceed force sensor will active and detect the exact amount should be in the bowl. Whenever we go to work or are away on vocation. We always end up paying so much money for pet sitters to feed our pets. We realized that adapting a pet feeder to an iot application would not only solve our problem but would also benefit other pet owners.

II. RELATED WORK

In [1] authors introduces a novel IIS that combines IoT, cloud computing, geoinformatics and e-Science for environmental monitoring and management, with a case study on regional climate change and its ecological effects.

The [2] presents the development of a cyber-physical system that monitors the environmental conditions or the ambient conditions in indoor spaces at remote locations. The communication between the system's components is performed using the existent wireless infrastructure based on the IEEE 802.11 b/g standards. The [3] paper present the hardware and software design and implementation of a low-cost, variable, and unobstructive intelligent accelerometer sensor for the monitoring of human physical activities. The [4] paper proposes a lightweight time synchronization algorithm for CoAP-based home automation system networks. The [5] paper proposes an oneM2M standards-

compliant device software platform for consumer electronics based on the IoT, called &Cube. The [6] paper proposed the new method to design a reconfigurable smart sensor interface for industrial WSN in IoT environment, in which complex programmable logic device (CPLD) is adopted as the core controller. In [7] authors proposed a novel approach to the wireless ‘language barrier’ problem between the smart phones and IoT devices of the future. The [8] paper presents an interactive framework of visualizing and authoring IoT in indoor environments such as home or small office. The goal of the [9] paper is to introduce, design and implement a smart pet house. The objective is to allow pet’s owners to automate simple things, like monitoring, lighting, feeding and air conditioning controls. In [10] author proposed a new intelligent inter-operability framework for smart home systems execution as well as coordinating them in a federated manner.

III. PROPOSED METHODOLOGY

Construction

The hardware kit consists of Arduino Uno, Sensors, Wi-Fi module. The supply of +5V is given directly from the adapter to Arduino. Here Arduino acts as Microcontroller and also as a gateway. Using the concept of IoT Arduino sends every detail to the cloud via Wi-Fi module. The data from the cloud is sent to Mobile Phones and is automated by the NodeMCU.

BLOCK DIAGRAM

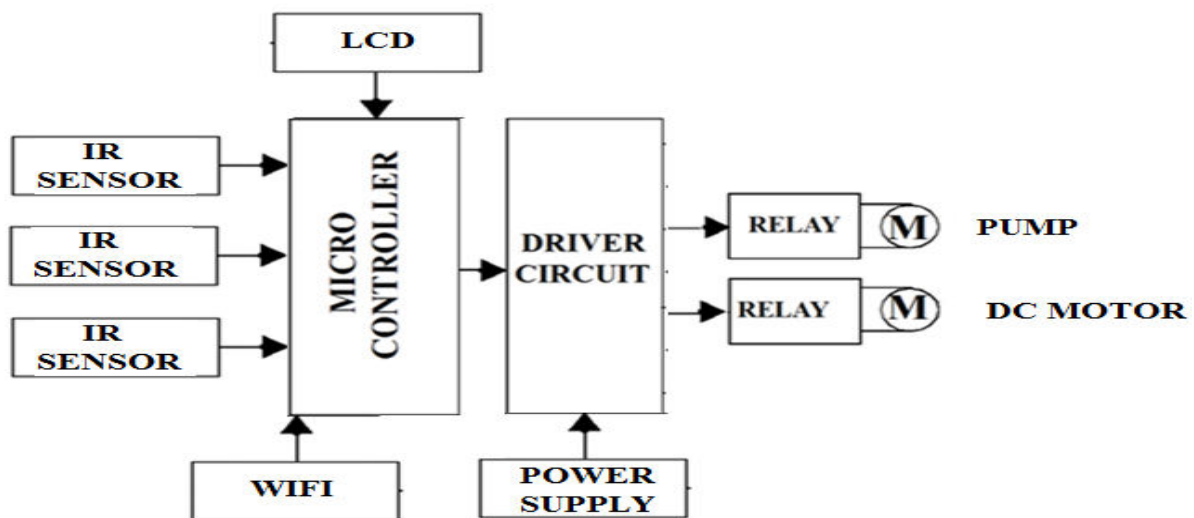


Fig.1 Block Diagram

Working

Smart pet door the pet door uses two IR sensors respectively for the function of detecting if pet was inside or outside and it constantly sends notification to the connected wifi module called ESP8266. The controller used here is arduino ATMEGA328 which is used as both as a controller and IoT Gateway. The mentioned part can also be upgraded with detect if the pet is ours or some other. android application can be used to send details to the mobile phone so that it becomes a complete internet covered pet system.

IV. RESULTS

Automatic pet feeder works efficiently and fulfils the objective of feeding pet in absence of its master. It works on 9v D.C. supply. The motor rotates the propeller and food gets delivered into the plate as programmed in the MCU. The whole system is connected to the mobile phone via internet using an online cloud portal If any interrupt is occurred in the app it is transferred to the microcontroller unit through internet. For example, in order to start food motor on we have to press on button in the app, then the signal is transmitted MCU there by it turns on the motor which guides the food down to the food bowl through propeller.

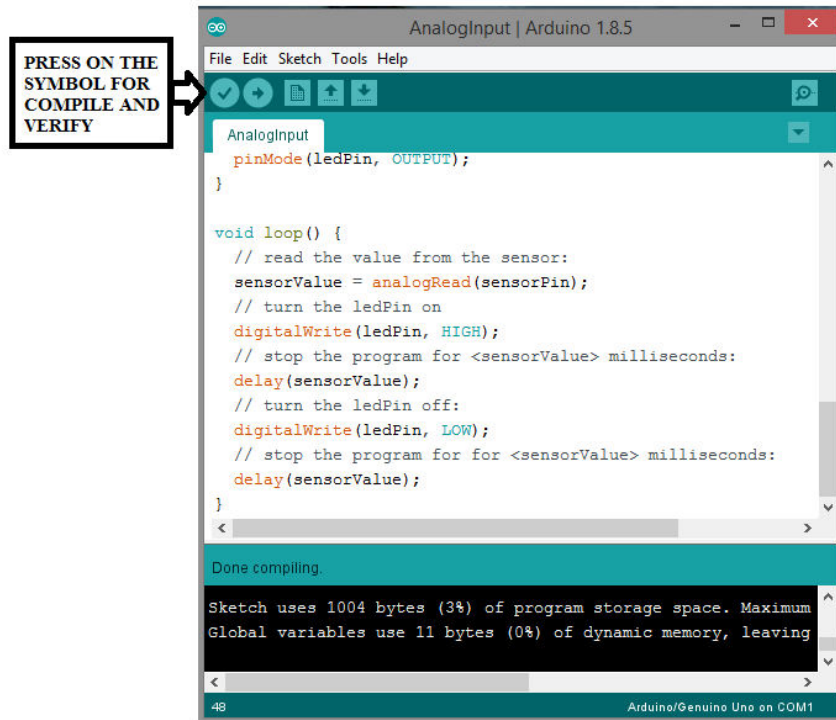


Fig.2 Expected Result

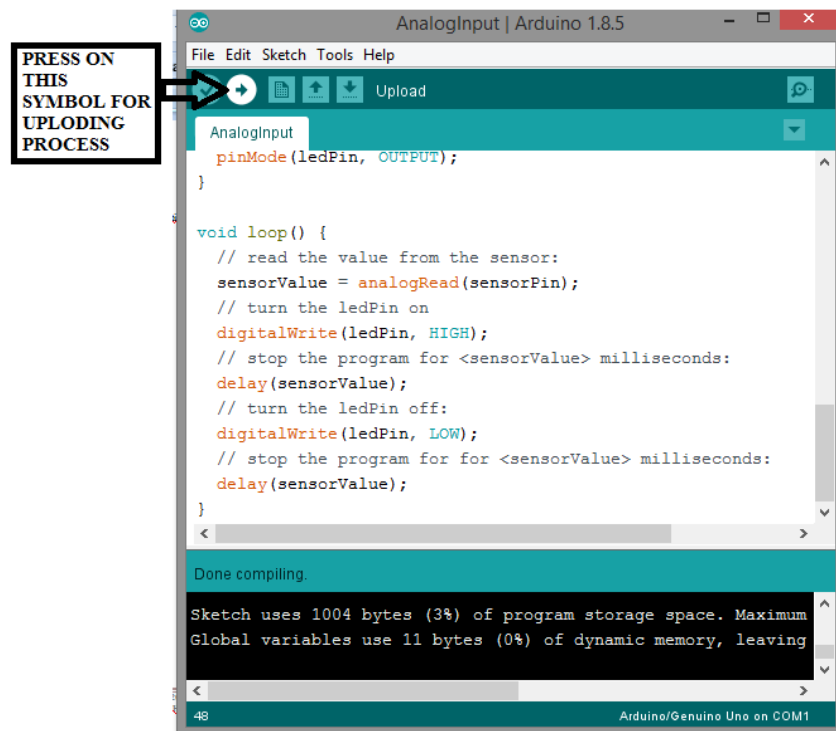


Fig.3 Expected Result(cont..)

V. CONCLUSION AND FUTURE SCOPE

“IoT is a platform which can embed both software and hardware. It is obvious from that IoT is an efficient way to access data. As suggested, SOAP based mechanism with web services is an ideal choice for managing diversified devices and appliances in home environment. Various sensors are used to monitor various activities of the pet say, an IR sensor is used to monitor if food is available in plate or not. Arduino acts as a gateway to send the information collected to the cloud storage, where the data can be retrieved and accessed using mobile or any other electronic gadgets. The whole network is wireless and hence loss of can't be achieved. To realise, two smartphone based SDR prototype, The work can further be improved by adding RTC to the feeder.

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