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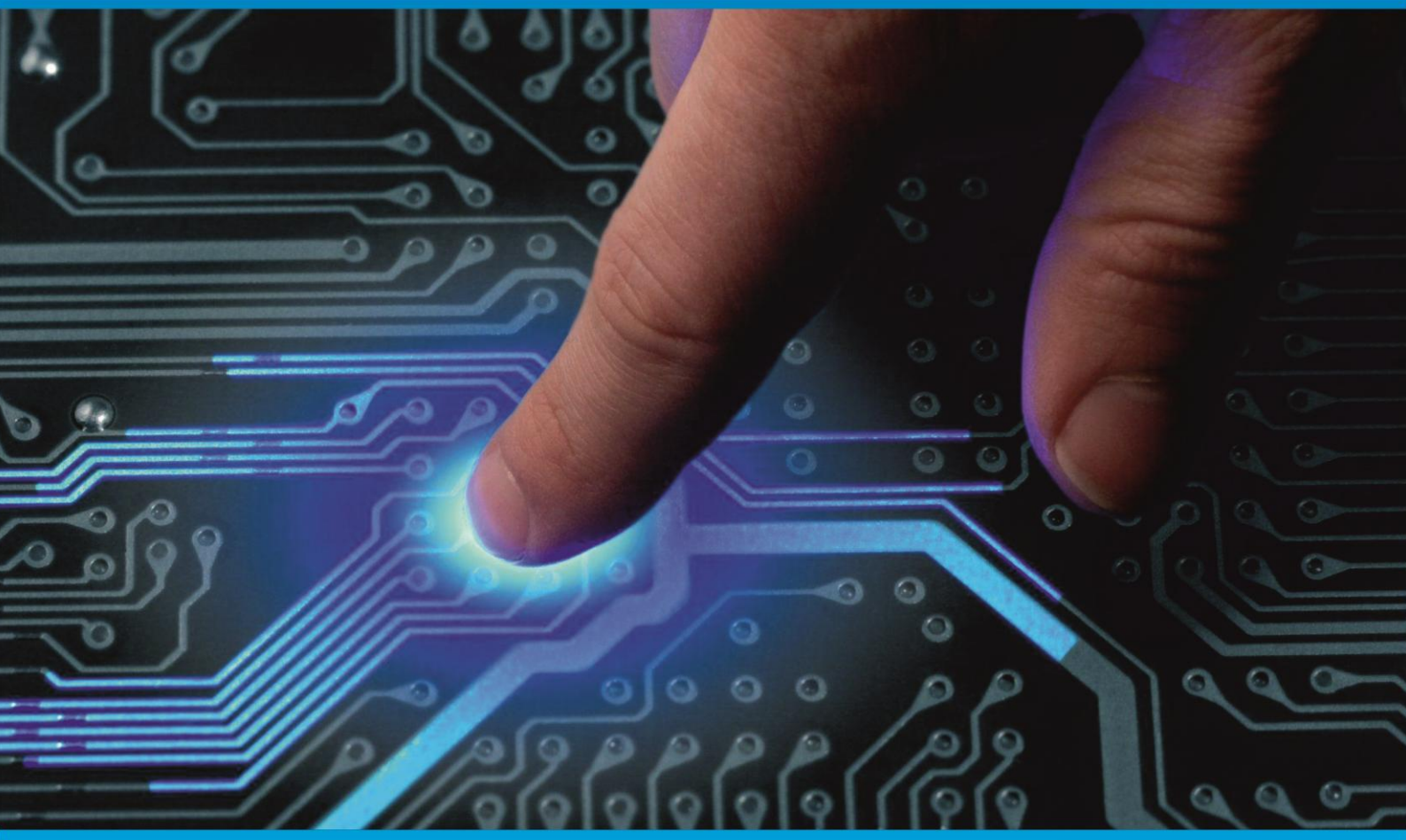

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Pet Feeder System Using RFID & Arduino

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ABSTRACT: Keeping pets takes many commitments. This includes keeping them company, showing your concerns, and of after all, feeding them on time and within the correct way. However, not everyone seems to be a pet expert taking care of your pet's diet are hard and time consuming. One amongst the highest health concerns of pets are overeating and obesity. Especially at younger age, they're usually satisfied with however much is given to them. Many adult pets are fed unscientifically that later may cause short lifespan. Another problem of feeding pets is that owners may not always be home regularly.

KEYWORDS: Continuous servo Motor, Arduino UNO, RTC, RFID Tag.

I. INTRODUCTION

Nowadays most people are fascinated to own pets at their home. But these pets should to be taken care properly. Their feeding on time is a vital task as they become a part of our family. But in our busy schedule we fail to pay/listen attention to our pet thus it doesn't get proper food on time. This paper addresses the above issue by introducing an Automatic Pet Feeding System to make sure feeding pet on frequent of your time. Automatic Pet Feeding System consists food storage, servo motor, dispenser/Container,bowl, etc. It also features Arduino to automatically control the operations like pouring food. Another problem of feeding pets is that owners may not always be home regularly.Being busy in your personal plans knowing that they still have a starving pet at house to be taken care of is usually a priority that bothers pet owners. The concern that we wish to deal with is the fact that there hasn't been manyproductin the market without delay that's ready to dispense different foods for various varieties of pets like dog, cat, mouse etc. However, pets themselves won't necessarily recognize the potential health problems of eating the incorrect food.
Now everyday Animals won't get proper food or food on time especially roadside animals, these techniques are will be very helpful for those animals. Not just for roadside animals it's also useful for those animals which are at Home/reception, Animal Health Care Centre or stores/Pet Shop. You can provide then food on proper time. Even, if no one is there to give them food Physically, then also you can provide them food by using this system you can also play, the voice recording of aowner ,so that animals/pet can't feel alone. Not only for cats, dogs, rabbits this method is also useful for all sort of animals.

1. Nee of the system

- EASILY USABLE:

It makes lives easy because you can set a fixed time for food in advance and later you need not to worry for the same.

- QUICK AND STRAIGHTFORWARD SETUP:

Built-in digital clock and LCD display takes the guess see of setting meals. Fabricated from BPA-free plastic.

- CONTROL PORTIONS AND Forestall OVEREATING:

Each tray slot holds up to 1 cup of dry or semi-moist dog or cat food; feed multiple smaller pre-portioned meals throughout the day for pets who have a habit of eating too quickly, or one larger meal once on a daily basis.

- EASY CLEANING:

Removable tray/ metal plate is dishwasher safe for convenient cleaning.

2. Detailed Problem Definition

The objective of this project is to create a pet feeder which serves automatically because it detects the presence of the pet. This project is proposed such it provides an efficient, easy and a pocket friendly method to create an pet feeder. Different sensors are used for the automated pet feeder in order that it works efficiently.

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3. Viability of the System

Thus, we've got designed a pet feeder system using Arduino and sensor, which is handy, portable, cost-effective and highly effective as well additionally. Such systems are hugely in demand for feeding purposes, and thus the given system are often proved useful and effective in sight of the above features.

4. Future Prospects

In this system, there'll be a WiFi module & Voice recognized module because in such case the Pet/Animals are alone at home, animal shelter/ reception, the owner can provide them food by using WiFi module & can even play the recorded voice of owner that the pet/animal can't feel alone. During this system, we can set the Timer, because in some cases the owner is busy or out of the house he/she can set the timer & the system will drop the food on proper time & will play the recorded voice. The owner can may ON/OFF this timer using their Android Smart Phone. This technique will be most useful in Animals Hospital, Animal Health Care Shelter &In Pet Shop/ center.

II. LITERATURE REVIEW

Animal feed distribution systems are a really6 common item and are used greatly both on a domestic scale same as on a bigger scale in commercial applications. Animal feed distribution systems are available in many various forms with alternative ways to manage how the feed actually gets distributed. Whether it's a manual system, an automatic feeder system on a timer, or a sensor-based system; there are many various ways to accomplish the identical end outcome, we have various routes to do it but we can choose which one works most effectively. The sensor we will used in making of any model makes the whole difference because it totally depends on that, how much human interaction the model will need.

Many users are trying to find for a system that's not only capable of running on its own, but also one that's visually appealing. In today's college culture, many young adults are trying to find for a brand new experience, and one amongst these experiences is bringing a pet of some sort home. Pet might be of any categories i.e cat, dog, rabbit, or some other animals. The main concern remains the same that what if the owner is away and pets does not get food on time and did not get in proper amount and not in proper way. This is often sad reality that leads to malnourishment and eventually abandonment of those animals.

III. DESIGN

1.1 Block Diagram of Pet Feeder System Using RFID & Arduino Uno

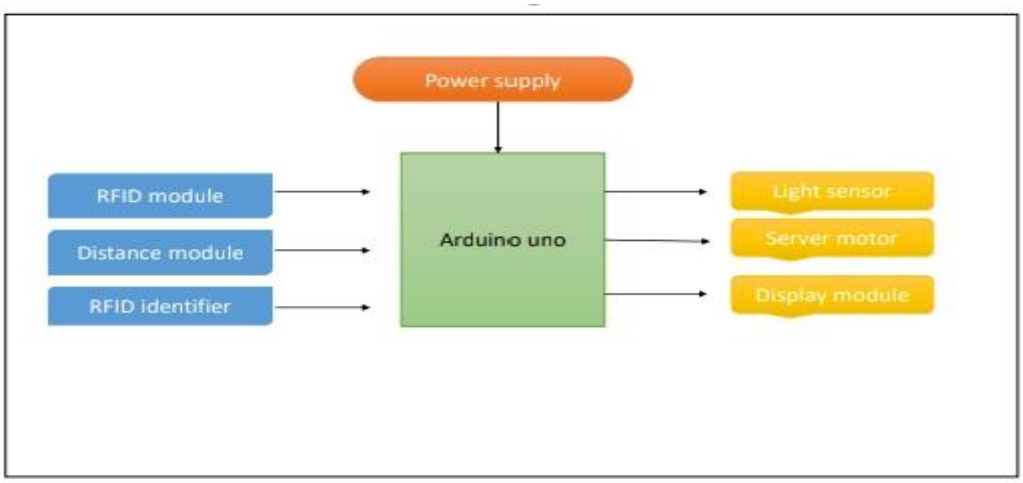

Fig-1:Block Diagram

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1.2 Circuit Diagram of Pet Feeder System Using RFID & Arduino Uno

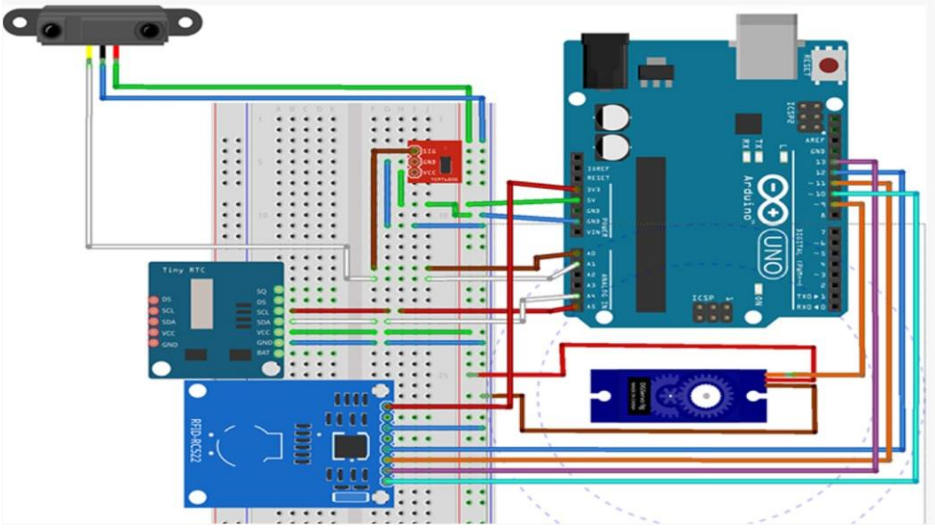

Fig-2: Circuit Diagram

1.3 Pet Feeder System Using RFID & Arduino Uno Requirements

1.3.1 Hardware Requirements:

- Servo motor.
- Resistor (1k ohm) (3).
- Arduino uno.
- Jumper wires (30 f-m wires).
- Breadboard. WiFi Module.
- Light sensor (module temt 6000).
- Led (green & red).
- Resistors.
- USB port.
- RFID tag module.
- RFID tag reader & identifier.
- Distance sensor.
- Real time display module.
- Power source (power bank / battery).
- Food container.
- Bowl

▪ Arduino UNO:-

The Arduino UNO is that the best board to get started with electronics and coding. If this can be your first experience tinkering with the platform, the UNO is that the most robust board you'll start fiddling with. The UNO is that the most used and documented board of the whole Arduino family.

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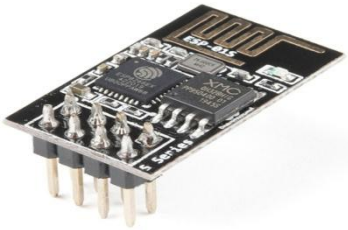
- Servo motor

A servo motor is a rotatory mechanism that enables precise control of angular or linear position, velocity, and acceleration. It consists of different type of attached with it to provide for area of working and it also an appropriate motor coupled to a sensor for position feedback.

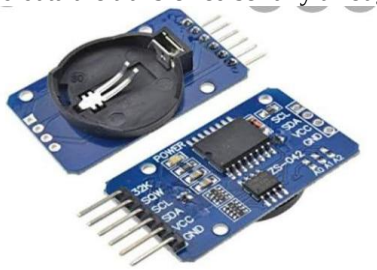
- WiFi Module

ESP8266 1MB Flash. The ESP8266 WiFi Module is a micro controller with integrated TCP/IP protocol stack that may give any microcontroller access to your WiFi network that that encode in our code. The ESP8266 is capable of either hosting a function/ code or offloading all Wi-Fi networking functions from another application.



- Time display module

The DS3231 is a low-cost, extremely accurate I2C real-time clock (RTC) with an integrated temperature-compensated crystal oscillator (TCXO) and crystal. ... Two programmable time-of-day alarms and a programmable square-wave output are provided. Address and data are transferred serially through an I2C bidirectional bus.



- Light sensor (module tempt 6000)

This sensor is used to determine the intensity of light, it constantly checks the it and if any object is present in between the path it catches that.

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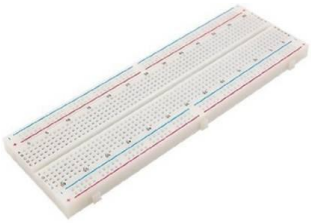
- RFID Module

  It comes with Rfid tag reader and identifier, it uses passive wireless technology that allows for tracking or matching of an item or individual.

- Bread Board

  A bread board may be a rectangular plastic board with a bunch of little holes in it. These holes allow you to simply insert electronic parts to example (meaning to make associated check associate early version of) an electronic circuit, like this one with battery, switch, resistor, associated an LED (light-emitting diode).



- Connecting wires

  Connecting wires permits associate degree electrical current to travel from one purpose on a circuit to a different as a result of electricity desires a medium through that it will move. Most of the connecting wires are created from copper and iron.

- Register

  A Register could be an assortment of flip flops. A flip flop is employed to store single bit digital information. For storing high number of bits, the storage capability is magnified by grouping quite one flip flop.

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- LED

  To turn on associate LED, the Arduino has to send a HIGH signal to at least one of its pins. To show off the diode, it has to send a low signal to the pin. You'll create the LED flash by dynamical the length of the HIGH and LOW states.

1.3.2 Software Requirements:

- Blynk Application

IV. WORKING

When the pet came in front of the machine it will detect by the Light Sensor. When the sensor detect the pet it will give the command to the Arduino Uno board will pass the command to Rfid tag. The Rfid tag will pass the command to RTC module. The RTC module will pass the command to Arduino and then Distance module checks condition with code Arduino to servo motor And its will dropped the food in a bowl and it will play the recorded voice.In case the pet owner is away from home they can set a fixed time using RTC Module as it commands servo motor to rotate and dispatch food from the container.

V. RESULTS

Automatic pet feeder works effectively and fulfills the objective of feeding pets in absence of their master/owners. This model can be given power using house hold power supply and it works on principle of RFID Tag.

In this system, when pets come in front of light sensor or near RFID, the pass signals to the arduino boards to its moves accordingly through servo motor and food is dispatched into the bowl.

On later part distance sensor is used to check the empty state of the container in which pet's food is stored. RTC Module is used in the model to increase its usability as the owner at set fixed time as well as the frequency for the food. Through this working module, owner can take care for their pets for effectively.

VI. CONCLUSION

Through this Pet Feeder using RFID tag and Arduino UNO is used to ensure proper timely feeding of pets in absence of their owners. This system provides assurance to owners as they don't have to worry about feeding them at regular intervals. This model is assembled using an RFID Tag which is used to check the presence of any pet nearby, a light sensor to assure the presence, a distance sensor to verify food availability into the container, RTC Module to set a fixed time/ routine, and a Servo motor to dispatch food from the container to bowl. Using this paper, we have designed a model and functions which can be used efficiently through the Arduino Uno board.

For Future Scope, We can use this model in various places such as animal shelters, pet shops, vet clinics, poultry farms, etc. A default sector can be attached to this system so it can notify an authorized person whenever any components are not working properly.

VII. ACKNOWLEDGEMENT

We are thankful to our college and faculties who have given us chance in converting our learning into practical implementations. With immense pleasure, we present the review paper on "Pet Feeder using RFID tag and Arduino Uno" as part of the curriculum of the diploma (Computer). We express sincere and profound thanks to the Head of Department Mr. V. S. Solanke, who is ready to help with the most diverse problems that we have encountered along the way. This would not have been feasible without the encouragement and guidance of our Project Co-ordinate.

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