

# Automatic Food Feeding System For Animals

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**Abstract-** This project is designed to make an animal feeding system for all kinds of use; cattle raising, farms, horse stables and many more. The feeding process will be automatized using an industrial controller which controls the feeders and will have a track of the food to settle up periods and quantities. This food feeding automation application could be applied remotely using a PIC micro controller and Wi-Fi, if necessary and the information can be accessed wherever you want, through a VPN connected to our MQTT server. This database data will be shown in a web server (Thing speak) that will monitor all the information. The analysis of the information should help in a continuous improvement cycle. In addition to that water level indicator and cleaning system is proposed in this project. IoT is one of the technologies that are used in a huge number of applications today. One of the applications (GSM) is tracking animal and keeps regular monitoring on them. This tracking system can inform you the location and route travelled by animal, and that information can be observed from any other remote location. It also includes the web application that provides you exact location of target. This system enables us to track target in any weather conditions.

**Keywords-** MQTT Server, GSM, Internet of Things, Tracking

## I. INTRODUCTION

The reason for this worth of effort may be on outline and actualize all the Automatic pet nourishing system". The term programmed pet nourishing framework may be a hot point not withstanding a day, particularly for those continuous advancements for innovation. Since the idea will be similar, nonetheless the occupants need aid different. This may be to enhance their generally personal satisfaction for life, increment autonomy Also keep emergencies, pet holder's requirement an approach will mechanize those transforms of bolstering from claiming their animals. Today's reality from claiming attempting fathers and moms and the nature from claiming vocation assignments. That by prompt animals being unattainably for extended periods a day need raised a considerable measure of worries. This makes it important to search for elective approaches with handle those assignment for dealing with those animals. In this design, pet feedings are converted from a cardboard box under an intelligent media in

general framework that incorporates imaginative innovation organization.

## II. LITERATURE SURVEY

### Existing system

#### A. Wireless Sensor Devices for Animal Tracking and Control

We began experiments with Mote hardware in early 2003 deploying a large (54 motes) network of Mica 1s outdoors and we investigated communications between ground nodes and between a node mounted on a flying robot. We found that it was difficult to establish communications between nodes 4m apart even though we could achieve many times this range in the lab. We learnt that radios sitting on damp soil lost most of their emitted signal to the ground, and that by placing them on inverted plastic flower pots we could increase the range. We also learnt that packet transmission was probabilistic rather than simply working or failing, and that often a received packet would be fine except for a single flipped bit. The differences between Fleck and Mica 2 are in: the radio transceiver, the power supply architecture, solar charging, and connectors for interfacing and expansion. In this paper we have described a new family of wireless sensor devices. They were developed with different engineering trade-offs to existing devices and to meet the needs of particular applications.

#### B. Animal Tracking and Caring using RFID and IOT

As the years pass new technologies are evolving. RFID (Radio Frequency Identifier) has grown as major enabler technology for tracking things around the world. RFID tags can be active or passive. Active RFID tags require battery as a power supplier for running the circuitry of microchip and transmit signal to the RFID reader. Passive tag does not contain battery. Rather they take power from the reader. With active tags tracking can be done to a longer range than that of passive tags. The main work of RFID is to identify and track the product, goods or person (here animals). Technologies such as RFID, IOT and sensors are been used. All animals in this have to be tagged or implanted with RFID. This helps and makes it easier in locating and tracking the animals. These

tags are embedded with sensor for mobile tracking with GPS (Global positioning system). With increasing in interaction between humans, object and living things (Animals, plants) there is a need to build and maintain connection between them globally. IOT does this work of connect humans, object and living things with the world. In this paper, we have addressed a model for locating animals and keeping track of them. It also takes in account the caring factor. As every animal's care is ought to be taken.

#### C. *Wild Animal Monitoring Using Sensor Networks*

Monitoring the wild animal behavior and whereabouts is a challenge because the animals avoid human beings. The commercially available solutions provide monitoring devices that have limited sensing capabilities, communications requiring cellular coverage or have long data report delays. We propose Lynx Net system with extended sensing modality and multi hop delay tolerant communication approach. Our collaborators - biology scientists aim to track Eurasian lynx (*Lynx lynx*) migration in Latvian forests. Hardware: Lynx Net system hardware is organized as three tiers of devices: the animal collar devices, the base station devices and the client devices. All devices use TM note Mini sensor nodes with TI MSP430F1611 micro-controller. Software: On top of the physical level communication, a design for MAC protocol is build. We are going to use a CSMA-based MAC – this method is proven to work well in sparse networks where collision probability is small. In this paper, we have presented our experiences designing Lynx Net – an animal monitoring system in the wild. We have created a hardware prototype of a highly mobile, energy efficient monitoring system that gathers accurate GPS position and multimodal sensor data and disseminates it through the system of delay tolerant network nodes to the consumer.

#### D. *Programmable Pet Feeder*

Pet feeding can be difficult in this busy age but the perfect Pet feeder delivers a worry-free solution to modern, caring pet-parents while away. There are many various types of automated pet feeding devices in the market now. Generally, most pet feeders are commonly for cats and dogs but for a few special cases, some pet feeders for instances, like the fish pet- feeder or the hamster pet feeder are specifically designed to suit only for that particular type of pet due to their size and environmental living conditions. Software: The software programming for the STC89C52RC Microcontroller is C-program and will be compiled using C18 compiler of the MPLAB Integrated Development Environment. This project has been a very rewarding experience for me. As I am not working in the semi-con industry, this project has given me a

chance to get more exposure in the field of electronics. As this project consists of both hardware and software.

#### E. *Development of Automatic Feeding Machine for Aquaculture Industry*

In designing the feeder, several criteria need to be determined; these include the characteristics of the fish, types and sizes of fish feed, and functions of the feeder. For this purpose, data and information have been collected to gain a baseline for the design. Factors or problems influencing the process have also been considered to ensure the efficiency of the machine. An automatic fish feeding machine for aquaculture industry in Malaysia was developed in this study. It is a simple and yet reliable, feasible, and quite efficient feeding machine. The automatic fish feeder was constructed using stainless steel grade 304 to avoid contamination. It is controlled by a digital timer which allows the owner to adjust the cycle time and dispensing time as and when required. More importantly, the timing can be programmed to ensure that the feeding schedule is consistent. The feeding mechanism is easily and widely adjustable. Among other, the height of the feeder is adjustable to accommodate different heights of tanks used in the industry. The design of the hopper will affect the rate and type of particle flows in the hopper. The properties taken into consideration when designing the hopper include the effective angle of internal friction.

#### F. *The Development of Automatic Fish Feeder System Using Arduino Uno*

The scope behind developing the automatic fish feeding system is to reduce the manual fish feeding system which utilizes more work forces. Moreover, there are certain advantages that lead to its development which are the amount of food that will be delivered to the water body that will measure or controlled keeping aquarium clean and fishes healthy. Feeders can feed the fishes even when the owner is away in a convenient way. In designing the fish feeder several criteria like size of water body, amount of food and time interval which form the baseline for the design. The automatic fish feeder system is implemented using Arduino and prototype hardware is designed using both hardware and software. Firstly, the information was collected regarding development of fish feeding system. The research was than bifurcated into software and hardware. It was observed that the motor revolved taking ten steps with delay of one whole day. The delay could also be extended to several hours as per the requirements. If this concept is implemented on large scale than we can use in pond management, fish farming, aquaculture etc. This automatic fish feeder system can be used other pets other than fishes for example birds, turtles etc.,

### III. PROPOSED SYSTEM

The goal of this work is to introduce, design and implement a smart feeding 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 animals 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 animals by the technology of the Internet of Things. 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 animal owners to automate simple things, like monitoring, and feeding controls. Implementing smart feeding houses will assure animals owners an increased comfort and peace of mind especially when animals are unattended.

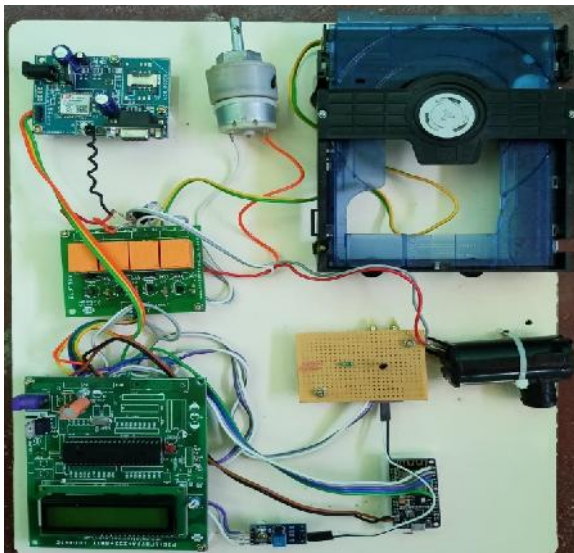


Fig.1 Prototype Model

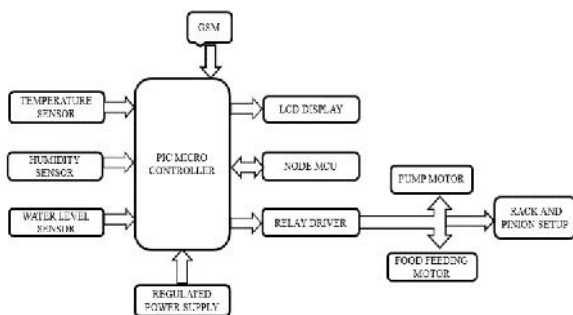


Fig.2 Proposed Block Diagram

#### Hardware Requirements

This system Circuit consists of PIC microcontroller, Regulated Power supply, Temperature sensor, Humidity sensor, Water level sensor, LCD Display, Relay driver, Rack and Pinion setup, GSM, IoT, ESP8266 Wi-Fi Module.

#### Pic Microcontroller

The PIC16f877A is one of the most used microcontrollers in the industry. The controller is very convenient to use and program. It has total number of 40 pins and a CMOS FLASH-based 8-bit. The Pin diagram for the (PIC16f877A) is Shown in Fig.3. PIC16f877A Microcontroller finds its application in a huge number of devices. For example, it is used in remote sensors, Home automation, security and safety devices, and in many industrial instruments.

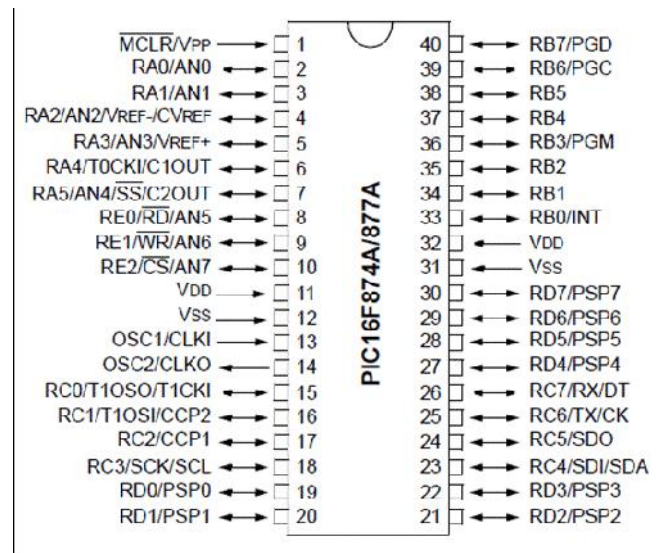


Fig.3 Pin Diagram for Pic Microcontroller

#### Regulated Power supply (REGULATOR7805)

Here the regulated power supply is used to converts unregulated AC into a constant DC to PIC microcontroller. Its function is to supply a stable voltage to a circuit or device that must be operated within certain power supply limits.

#### GSM

Here GSM is used to exchange the collected data from the micro controller to the user mobile, it transfers the information like the water availability in the tank and also transfers the current location of the animal. The location can be tracked by using the GPS available in it.

#### Rack and Pinion setup

A rack and pinion setup is a type of linear actuator that comprises of a pair of gears which convert rotational motion into linear motion. A circular gear called "the pinion" engages teeth on a linear "gear" bar called "the rack"; rotational motion applied to the pinion causes the rack to move relative to the pinion, thereby translating the rotational motion of the pinion into linear motion. A Rack and Pinion Gearbox (RPG) has following components: -pinion gear with integrated shaft, rack, casing, bearing, and bronze bush.

#### IV. RESULT

The reason for this worth of effort may be on outline and actualize all the Automatic pet nourishing system. The term programmed pet nourishing framework may be a hot point not withstanding a day, particularly for those continuous advancements for innovation. Since the idea will be similar, nonetheless the occupants need aid different. This may be to enhance their generally personal satisfaction for life, increment autonomy Also keep emergencies, pet holder's requirement an approach will mechanize those transforms of bolstering from claiming their animals. Today's reality from claiming attempting fathers and moms and the nature from claiming vocation assignments. That by prompt animals being unattainably for extended periods a day need raised a considerable measure of worries. In this design, pet feedings are converted from a cardboard box under an intelligent media in general framework that incorporates imaginative innovation organization.

#### V. CONCLUSION

In this project we have done an automatic food feeding motor, which can provide a food for animals within correct manner and correct time. When compared to the existing system it is more accurate and developed with some extra features. Monitoring and tracking features added to prevent the theft of animals from the cattle. This system has authorized protection which can monitor and send the details to the owner like food is available or not for the animals. And it also Track the exact location of the animals. By the user-friendly android application can be monitor by the owner whenever they want.

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