

# Pet Monitoring Robot Using Iot

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## ABSTRACT

People love their pets and vice versa, but there are times you need to leave your pets at home for long durations alone and this is a problematic issue. 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 (BLYNK APP) to get on demand footage of home. The robot is a 3 wheeled drive system with a feeding tray and 2 x steel bins Bin1 Stores Dog Food/Cat Food Bin 2 Stores Water. The robot dispenses appropriate amount of food and water in feeding tray as instructed by user online and then slides open the feeding tray. Once the pet has eaten it closes the feeding tray. All of this can be monitored online by the pet owner. This entire system is controlled by a ESP32 controller that allows for efficient controlling of all robot functionalities.

**KEYWORDS :** BLYNK APP , ESP32 controller

## I. INTRODUCTION

The pet feeding robot is in great need because pet keeping is a time-consuming responsibility and we want to provide convenience to users by helping them feed their pets easily and smartly from anywhere around the world. Keeping pets takes many commitments. This includes giving them company, showing your concerns and of course, feeding them on time and in the right manner. However, not everyone is a pet expert; taking care of your pet's diet can be hard and time consuming. One of the top health concerns of pets are overeating and obesity. Especially at younger age, they are 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 users might not always be home regularly as they need to travel to another country for business or vacation. Being occupied by personal plans knowing that they still have a starving little fellow at home to be taken care of is always a concern that bothers users. The third concern that we want to deal with is the fact that there hasn't been any product in the market right now that is able to dispense food for pets monitored by its user in real-time. However, pets themselves might not necessarily recognize the

potential health problems of eating the wrong food. There are products like Pet net, Auto Pet Feeder, and Automation Pet Feeder which can be scheduled to dispense food at certain interval of time, but it lacks real time monitoring and mobility. Therefore, we want to take care of the users' concern of feeding by building a phone/laptop controlled real-time semi-automatic pet feeder that can dispense the desired food as per the user by live camera feedback.

## II. WORKING PRINCIPLE

The Pet Robot consist of 60% of hardware and 40% of software. The Node MCU (Micro Controller Unit) ESP8266 acts as the brain of the hardware of Pet Bot.

The MCU which receives the power from the battery (12 DC) and MCU supplies to drive motors L293d which helps to run the motors M1 and M2 that helps the Pet Bot wheels to move around the house.

The MCU supplies the power for servo motor which helps the Pet robot in the process of feeding. As the MCU is only able to provide 5v of power to any motor but the pump motor required amount of power is 12v so we are using Relay to give additional power to the pump motor as the pump motor is used for watering the pets. The ARUDINO IDE is used to write the software program for the Pet robot to move, feeding and watering functions. The BLYNK app is used to create the remote controller that helps in controlling the Pet robot to perform the functions. The software program is then dumped into the BLYNK app.

**1.Feeding:** The feeding operation takes place with help of Servo motor which is controlled through nodemcu. The feeding mechanism has a funnel with open and close sharft system. which has grooves on certain intervals which fits one food. There is a tank with the respective food and has an opening which is programmed in such a way that it will allow only certain amount of food required for a particular box.

**2.Watering:** The watering mechanism is done by a special motor used in pumping water. In this there is a tank for storage of water. The water is pumped through a pipe using the motor. The motor is

connected to the nodemcu and is programmed in such a way that watering will be started just after

the feeding is done. This process will continue for a certain time as programmed in the nodemcu.

### III. BLOCK DIAGRAM

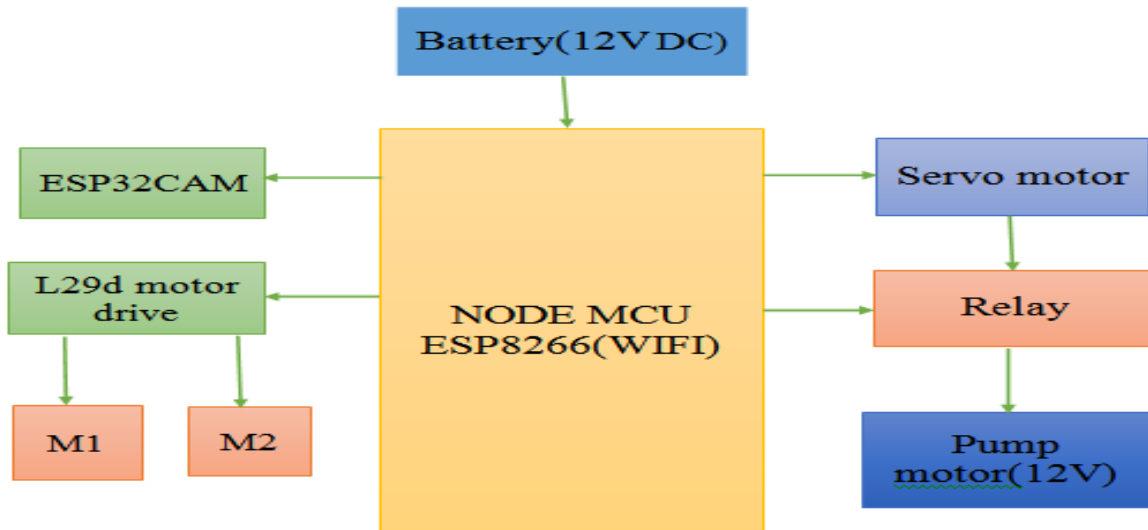


Fig 3.1Block diagram

### IV. TECHNOLOGY

#### Software Description

- IOT
- BLYNK APP

#### IOT

The Internet of things (IoT) describes physical objects (or groups of such objects) that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

#### BLYNK APP

##### How It Works

Blynk was designed for the Internet of Things. It can control hardware remotely, it can

display sensor data, it can store data, visualize it and do many other cool things. There are three major components in the platform:

**Blynk App** - allows to you create amazing interfaces for your projects using various widgets we provide.

**Blynk Server** - responsible for all the communications between the smart phone and hardware. You can use our Blynk Cloud or run your private. Blynk server locally. It's open-source, could easily handle thousands of devices and can even be launched on a Raspberry Pi.

**Blynk Libraries** - for all the popular hardware platforms - enable communication with the server and process all the incoming and out coming commands.

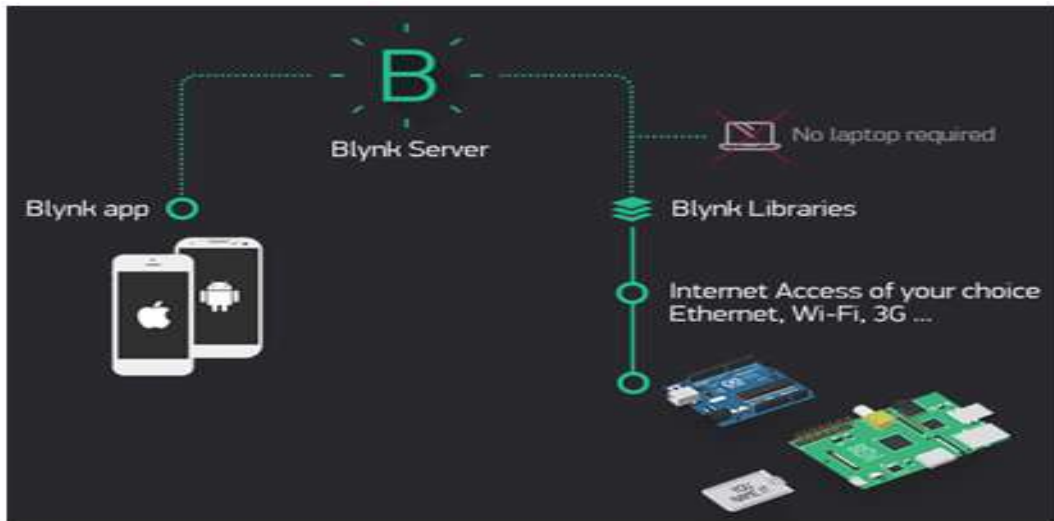
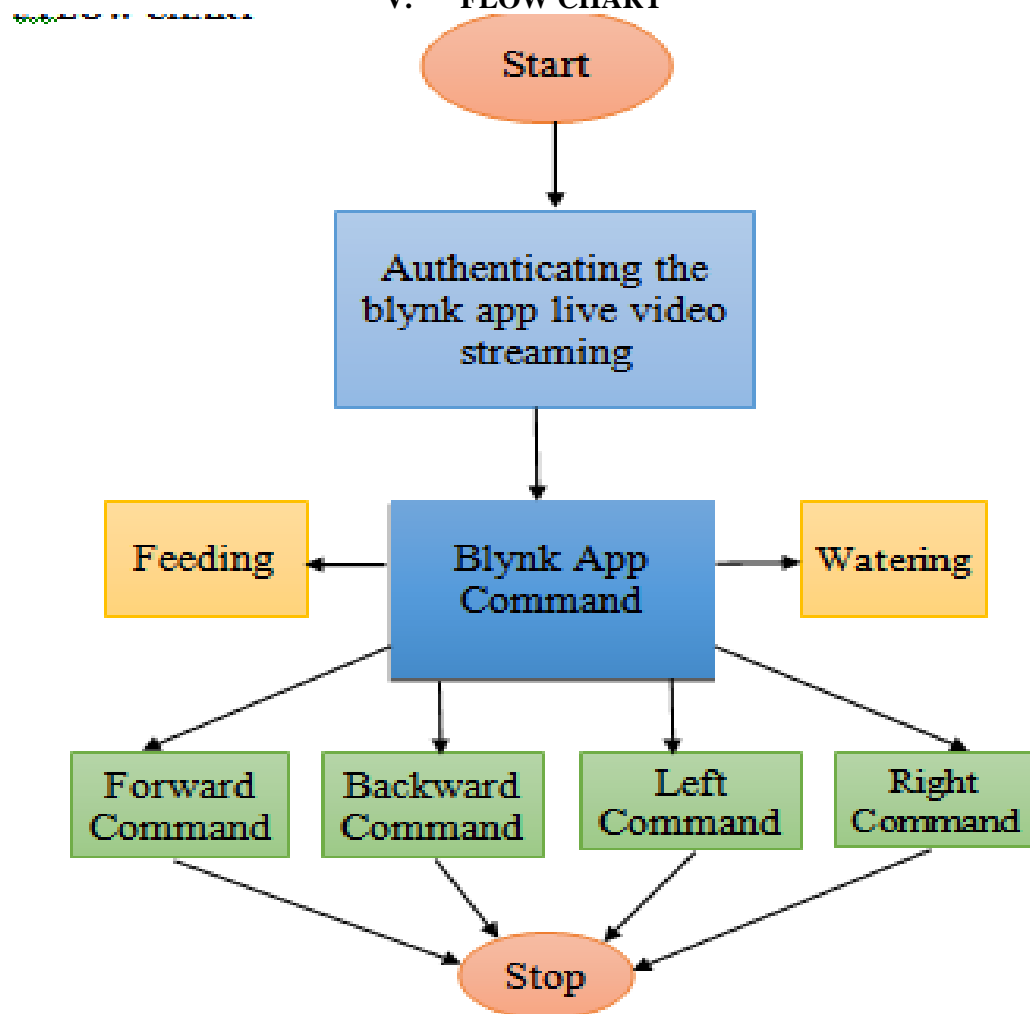


Figure 4.1 : Blynk

### V. FLOW CHART



## VI. PROTOTYPE



## VII. RESULT

Pet robot is a robot which helps the owners in their home purpose by reducing the work. The Pet robot dose all the work very fast and with more precision and with less effort and less human power like feeding and watering.

## VIII. CONCLUSION

In this project we have built a IOT based Pet Robot which can perform multiple functions such as Feeding, live video monitoring and watering. With less effort and with less human power.

## IX. FUTURE SCOPE

IoT is a platform which can embed both software and hardware. It is obvious from that IoT is 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. An RFID tag is used in pet collar enables the pet to transmit its identity. Arduino acts as a gateway to send the information collected to the cloud storage, where the data can be retrieved and accessed using mobile number or any other electronic gadgets. The whole network is wireless and hence loss of can't be achieved. To realise, two

smart phone based SDR prototype, it involves IEEE 802.15.4 and IEEE 802.11. For 802.11p, the minimum required sampling rate is 10MS/s, thus we use PPSK and QPSK each is 4bytes. The work can further be improved by adding RTC to the feeder.

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