GOOGLE ASSISTANT CONTROLLED AUTOMATIC PET FEEDER

Sahana S Khamitkar[1], Naveen Kumar B[2]

[1]P G Scholar Master of Technology in Computer Science and Engineering,

Department of Studies in Computer Science and Engineering,

University B D T College of Engineering (A Constituent College of VTU, Belagavi, Karnataka)

Davangere – 577004

[2]Assistant Professor Department of Studies in Computer Science and Engineering, University B D T College of Engineering (A Constituent College of VTU, Belagavi, Karnataka)

Davangere – 577004

ABSTRACT

Pet owners these days want to enjoy the company with their pets, some pet owners have the time to feed their pets and some do not have the time to do so. To overcome these situation automation and (IoT) comes into existence to develop a system that can fulfil the pet owner requirement without doing any harm to their pets. Google assistant controlled automated pet feeder machine is simple, efficient and also cost effective. Using this machine pet owners can feed their pet by Google Assistant which is inbuilt on most of the Android SmartPhones from anywhere around the world. The user in order to feed their pet have to give a command on their SmartPhones such as **"Okay Google", "Feed my Pet"**, with the help of this command the machine will do its following work. The user can also specify the time to feed their pet on schedule using Google Assistant. When the user gives a command as **"Okay Google", "Feed my pet Today Morning"** the machine will feed their pet at the time specified by pet owner. Similarly, User can also specify time for afternoon and also to the evening.

Key Words: IoT, Google Assistant, SmartPhones.

INTRODUCTION

Automation has been an industrial revolution in demanded in associate industrial scale and also in our lifestyle gadgets. Customers are a lot of drawn to automatic devices than anything which is for the aim of ease in use and time saving. Corporations try to fulfil the stress and therefore the automation business is turning into stronger and a lot of developed each day. Automation may be a technique of dominant associate in operation procedures in an automatic manner with the assistance of electronics and computer code that may be programmed and enforced with machine learning technologies, automation has been there with in the market since 1960's when the primary ATM machine was introduced, with the assistance of such machinery the method became a lot of easier quicker and a lot of convenient for the customer.

Pet house owners of late need to fancy the corporate with their pets, some pet house owners have the time to feed their pets and therefore few don't have the time to try to do so. To beat these situation automation and Internet of Things comes into existence to develop a system which will fulfil the pet owner demand while not doing any damage to their pets. To take care of such a retardant automated pet feeder came into existence that provides a customized expertise to the pet owner from that the pet owner will program the feeding schedule. The food distributed from the pet feeder will be programmed for specific timings and with specific quantities of the food depending upon the diet chart. Pet owner these days are not available to feed their pets on proper schedule and according to their diet chart. Usually pet owners who are studying or working until late are not punctual at feeding their pet, Mostly people under estimate the harm of this problem, pet owners usually under look this issue with an un-solving dangerous solution which is over filling the food dish with a very large quantity of food.

IoT provides methodologies and set of standards that are associated with real world objects. All pets require treatment and special care. Busy routine of the pet owners had been difficult for the pet owners to care for their pets. The pet feeder helps in keeping the food clean. The bowl mechanically opens and shut the covering. The sensors that area unit connected with the pet feeder detects the presence of the pet. The covering of food dispenser opens in order that the pet will access the food.

Google assistant controlled automated pet feeder machine is simple, efficient and also cost effective. Using this machine the pet house owners will feed their pet by Google Assistant which is intrinsic on most of the Android Smart Phone from anyplace round the world. The user in order to feed their pet have to give a command on their Smart Phone such as **"Okay Google", " Feed my Pet"**, with the help of this command the machine will do its following work. The user can also specify the time to feed their pet on schedule using Google Assistant. As an example if the user can say **"Okay Google", " Feed my pet Today Morning"** the machine can feed their pet at the time fixed by the pet owner. Equally the user will also specify the time for afternoon and additionally to the evening and night. This machine can also record the number of meals that have been dispensed or the timing of last meal or next meal that the pet is going to have. Voice recordings of the pet owners can also be used which is familiar to their pets to call their pets for feeding when the owner is not around. It is also possible adjust feeding time intervals and can be programmed for different time intervals(morning, noon, evening, night) or portion of the meal(meal sizes) in order to maintain pets health and diet to avoid health related risk. Similar kind of machines can be installed in various places like animal shelters, poultries, farms, zoo's etc.

PROBLEM STATEMENT

Maintaining pet diet plays a vital role in monitoring pet health condition. Taking care of the pet is commonly known to be one of the difficult tasks for most of the pet owners. All pets would like to be taken care of and also the pet owner has got to pay attention of them. Some pet cannot manage their diet and will eat as long there's is food for them. Alternative pet can simply eat a precise form of food. In easy term, the pet owner cannot leave their pet on its own. The matter happens when the owner has got to leave their pet for sure amount of time and if there's nobody to

observe them. Thus to resolve this drawback, machine which will automatically feed the pet while not the presence of the owner is required to form positive that the pet stay healthy.

OBJECTIVES

- To develop wireless system which is cost effective, efficient and easy to access to feed pet with simple command in the smart phone using Google assistant.
- It is compatible and easy to carry or install on different places as needed.
- To store further food within the extra reservoir or instrumentation to stay food safe from pests furthermore as uncontrolled appetency.
- To keep in track of pets diet and maintain balanced diet.
- To record the number of meals dispensed or the timings of the last meal or next meal
- To adjust intervals between feeding times.
- To have user friendly device that is easily adaptable by the user with least experience in operating mobile phones.

LITERATURE SURVEY

1. Title: Programmable Pet Feeder

Year of Publication: 2014

Authors : Tessemma Gelila Berhan, Worku Toyiba Ahemed, Tessema Zelalem Birhan

This paper gives us the idea about programmable pet feeder. Pet feeder machines came into existence when most of the pet owners found it difficult to take care of their pets in order to feed them on proper scheduled time. Pet feeders are known as automated machines that are capable of dispensing food at schedule time with minimum human intervention. Pet feeding machines are mainly timed based and they are capable of dispensing specific amount of food at specific time daily. The pet feeder are of two types that are manual and automated, the automated pet feeder are usually pre-programmed system that is controlled by a microcontroller. Programmable pet feeders requires various components such as LCD display screen , buzzer , stepper motor to regulate the speed and flip table that is split into totally different sections for placement of various food. There are various forms of machine-driven pet feeding devices within the market currently just like two of them mentioned similarly there are fish pet feeder, hamster pet feed designed on the basis of their living conditions and their body sizes.

2. Title: Pet Feeding Dispenser Using Arduino And Gsm Technology

Year of Publication: 2018

Authors : Smruthi Kumar

This paper target topic wherever the pet hose owners will feed their pet in their absence by causation a message to a system through itinerant. During this system GSM technology is been adopted to receive a text from the pet owner, once the system receives the text from the owner the magnet(solenoid valve) and servo motor are

activated. This cause the servo motor to rotate in order to dispense the food. To permit water to free flowing , the valve are going to be open. Once when the method of feeding is finished, owner can receive a message blessings of this method are; the owner will feed their pets while not their presence; this method is effective/cost effective. The disadvantage of this method are: Pet owners ought to intermediate within the method, the network coverage is poor.

3. Title: Proposed System for Animal Recognition Using Image Processing

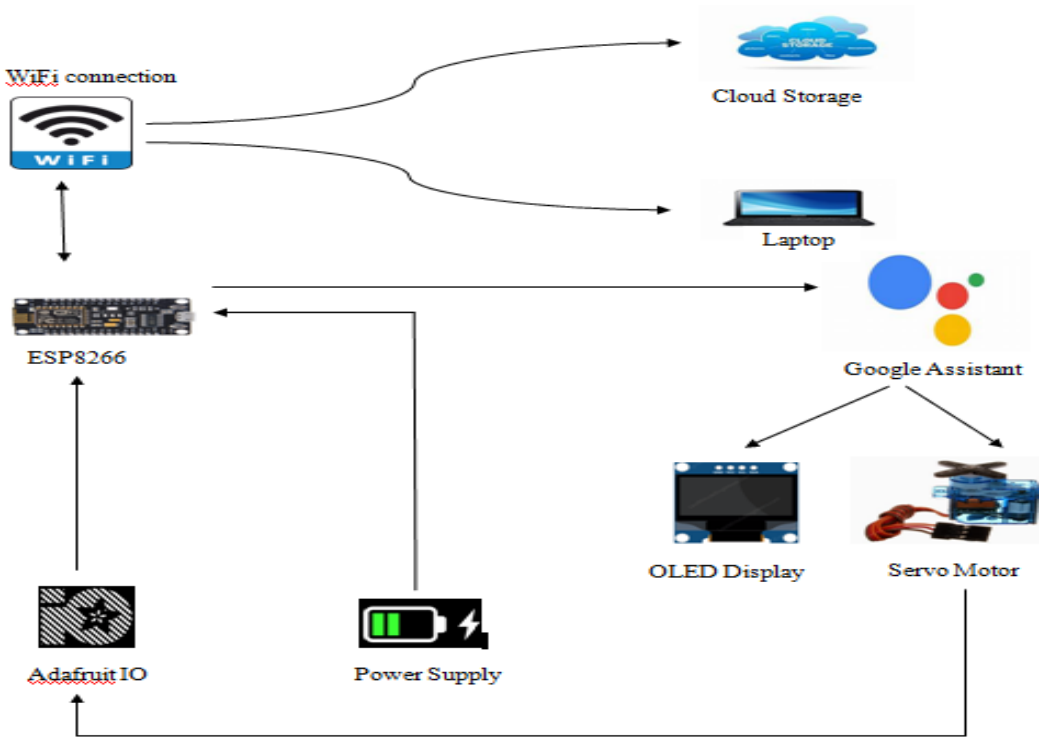
Year of Publication: 2019

Author : Prof. Ichhanchu Jaiswal

This method uses PCA algorithm with Eigen faces to propose image based animal detection system. Here the picture area unit resized and that they calculate the Eigen faces and Eigen values of the image. Then the projection of focused image to face space is calculated. Blessings of this system are: Accuracy for the popularity is healthier, less power is consumed. Disadvantage of this technique is that this system uses obsolete method for detection.

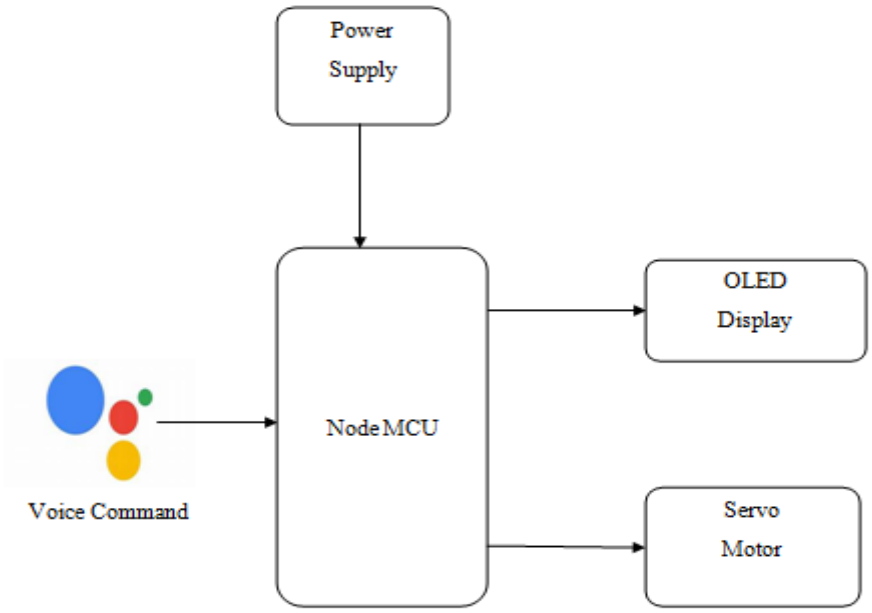
SYSTEM ARCHITECTURE

The interaction between human and physical devices is gaining a lot of attention. Raising pets in a straightforward approach has been the tough recently. This technique provides the power of computation, communication, and management technologies to boost human interaction with the pets by the technology that's Internet of things. This project work addresses the improvement through the pet application of the power to feed pet.



System Architecture of Google Assistant Controlled Automatic Pet Feeder

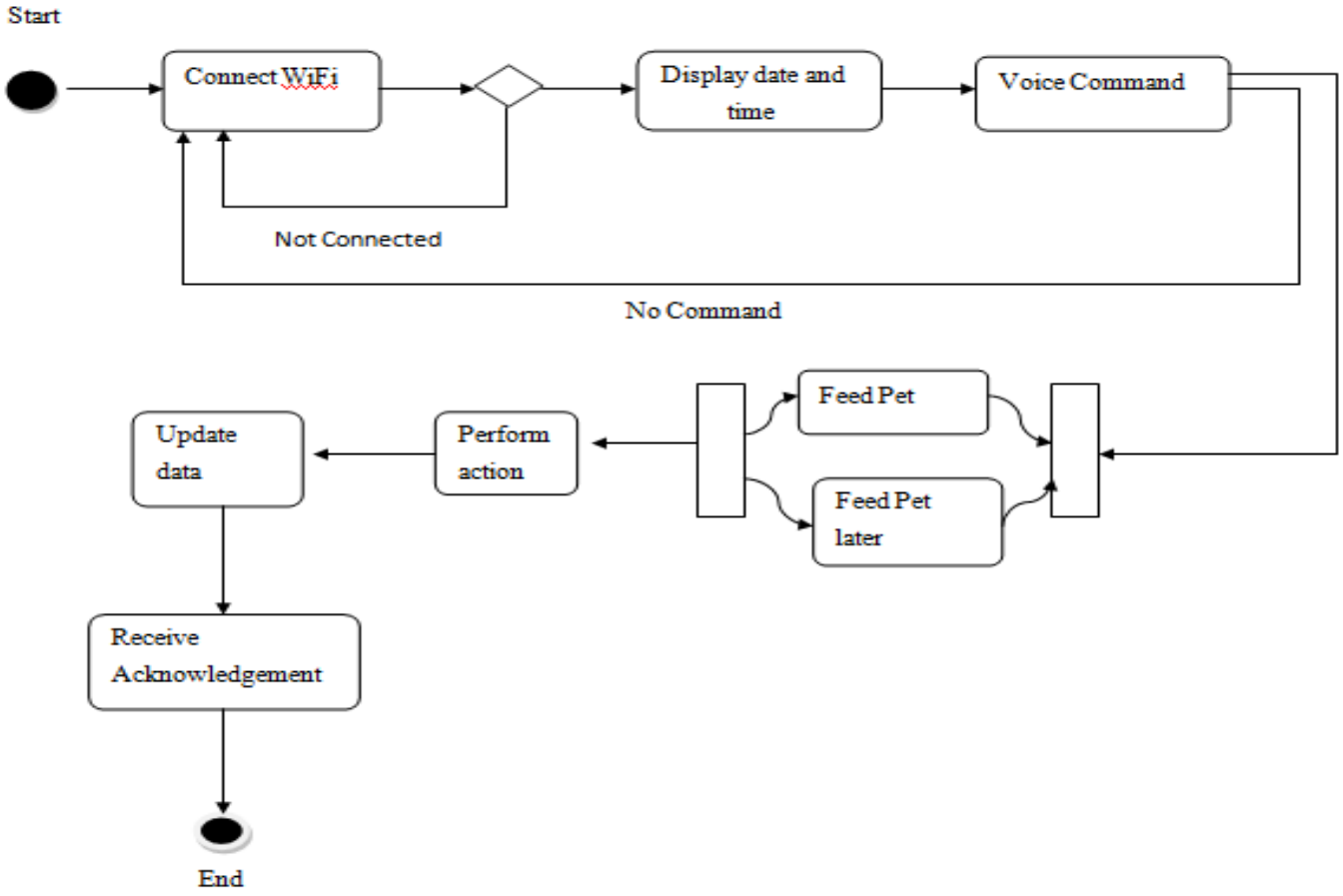
The proposed system helps on feeding pet by Google Assistant from anywhere in the world. By saying simple commands on Smartphone such as **"Okay Google"** to trigger Google assistant on smartphone and **"Feed my pet"** to feed pet. The time can also be specified using Google Assistant to feed Pet. For example **"Feed my pet Today Morning"** to feed pet at specified time. Similarly user can also set a specific time for afternoon and evening. The above fig shows Node MCU the main controller, a Servo motor to open & shut feeding dispenser, and a 16*2 LCD to display the time. User can get the time from NTP servers. NTP server reduces the components. NTP servers are used over RTC because it is additional correct and can give time of any geographical region within world. AdaFruit IO, is we can transfer, display, and monitor users knowledge over the web and create system IoT enable.



Above figure represents block diagram of Google Assistant Controlled Automated Pet Feeder

ACTIVITY DIAGRAM

An Activity diagram is employed to model the progress depiction conditions, serial and coincidental activities. We use activity diagram for instance the flow of management during a system.



represents activity diagram for Google Assistant Controlled automatic Pet feeder

When the process is started the system is connected to WiFi. If the system is connected to wifi successfully the system will display Welcome message and current time on the oled screen. If wifi is not connected the system will display message as connect wifi. After successful wifi connection the user needs to give a voice command in Google assistant. The voice command are feed my pet or specify certain time to feed their pet. If no command is given the system stays at rest. As soon as the system gets voice command from the user the system will perform its action. After successful action the user will receive message/voice command of acknowledgement in Google assistant. All the data will be stored in Adafruit IO cloud the user can view data from Adafruit IO.

HARDWARE REQUIREMENTS

The most common needs outlined by any OS or package application is the physical pc resources, conjointly called hardware. The hardware needs required for this project are:

- **Node MCU ESP8266:** Node MCU is an ASCII text file affordable based mostly code that is specially targeted for IoT based mostly Applications.

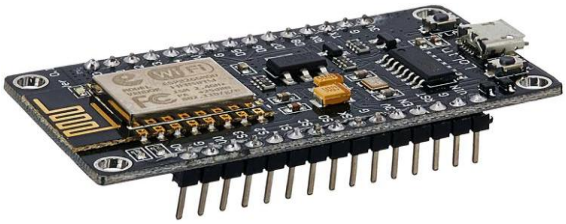


Fig 3.3(a) : Node MCU ESP8266

- **OLED:** OLED is an organic diode. OLED shows many be a self light-emitting technology composed of skinny, multilayered organic film placed between anode and cathode. In distinct to LCD technology, OLED doesn't need a blacklight.

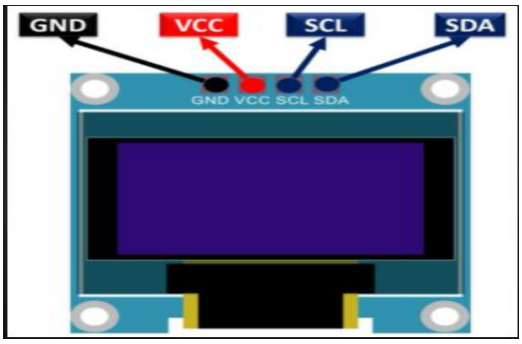


Fig3.3(b): OLED Display

- **Servo Motor:** A servo motor may be a positioned or motor. It permits precise management in terms of spatial relation, acceleration and speed.

Fig 3.3(c) : Servo Motor

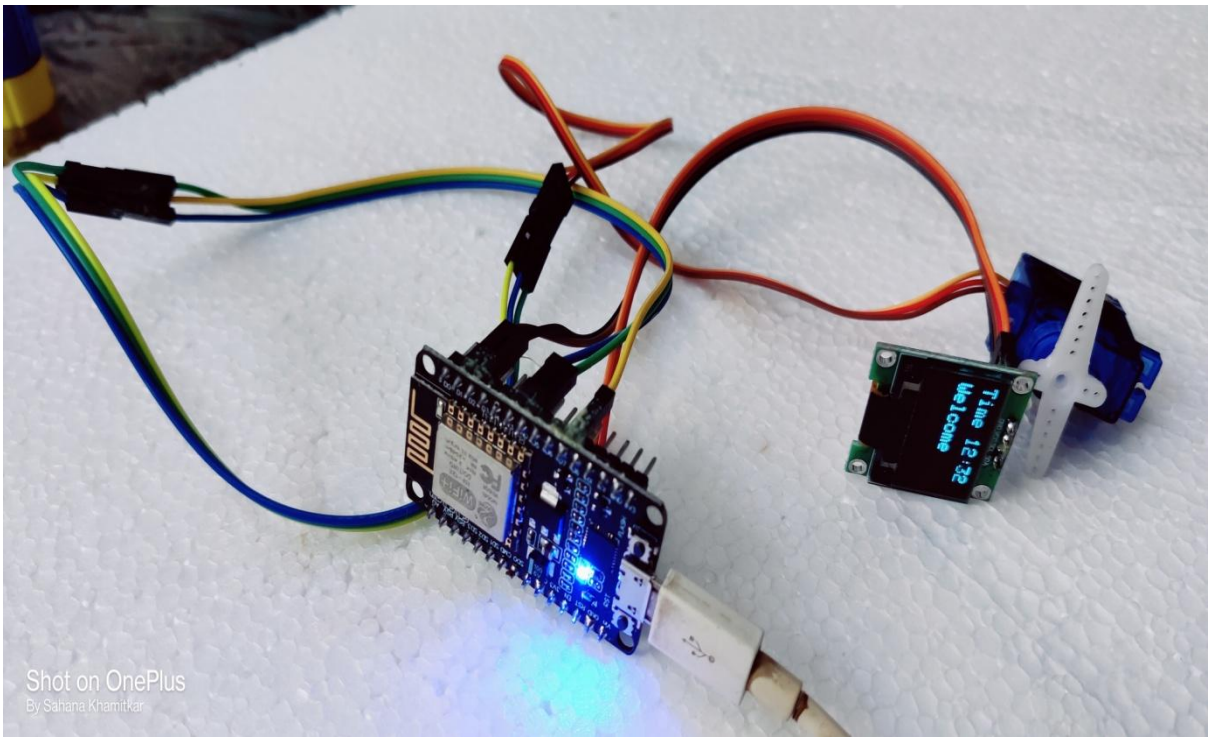
- **Jump wires:** jumper wires area unit merely wires with instrumentality pins at the every finish. It permits to attach two points to every alternative while not bonding. Jumper wires area unit are used with breadboards and alternative prototyping tools. It makes easier to alter circuits.
- **Micro USB cable:** Micro USB cable is used to connect system and computer in order to obtain required power supply.
- **Mobile device:** Smartphone allows technique like in-built Google help, Apple's Siri etc.

SOFTWARE REQUIREMENTS

- **Arduino IDE:** Using Arduino IDE we will write code and transfer it on UNO board. Its capable to runs on windows, mackintosh OS and UNIX package. It additionally outputs the results for analysis exploitation each serial monitor and serial plotter.
- **Adafruit IO:** Adafruit.io could be a cloud service. User will connect with it over the internet. It is used in storing so retrieving data.
- **IFTTT web service:** If This Then That (commonly called IFTTT,). It's a web-based service used to permits users to make chains of conditional statements triggered by changes that occur inside different net services such as Gmail, Facebook, Telegram, Instagram, or Pinterest. It permits to attach apps, devices and services.

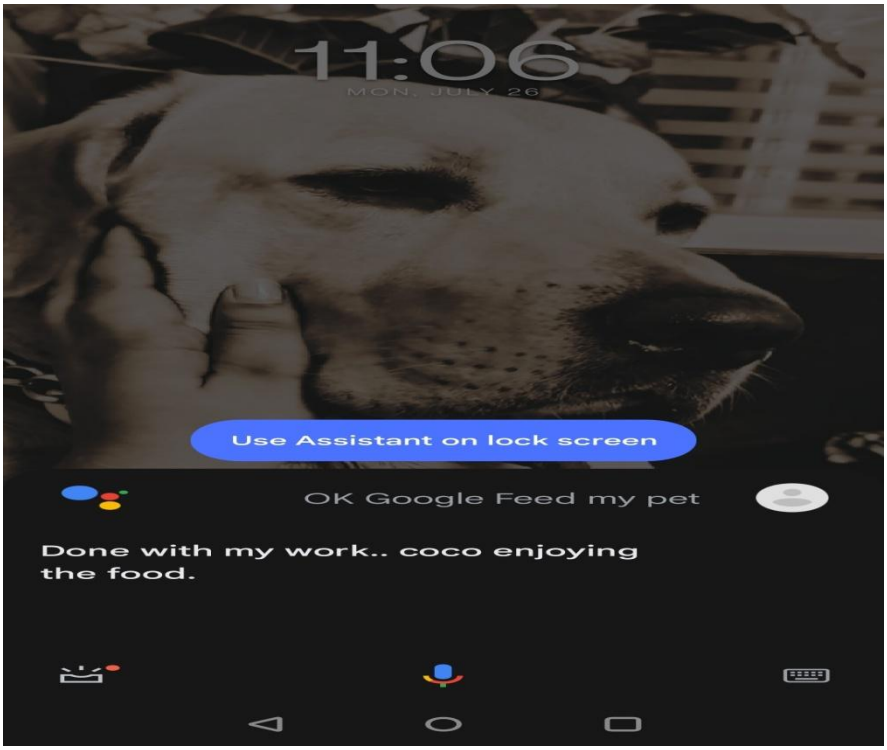
RESULT SNAPSHOT:

1. **Snapshot 6.2(a)** Google Assistant Controlled Automated Pet Feeder.



Above Snapshot represented the output of Google Assistant Controlled Automated Pet Feeder.

2. **Snapshot 6.2(b)**



When the user gives command as “feed my pet” the system will do its job of feeding pet and displays the message as shown in above figure. Similarly user can feed their pet at specified time.

CONCLUSION

Proposed model is helpful for the pet owners to overcome the difficulties in feeding their pet. The machine is controlled via Google Assistant with simple commands. It can feed pet effectively and also can dispense food on various specified time. It is also possible adjust feeding time intervals and can be programmed for different time intervals such morning, afternoon, evening and night or portion of the meal in order to maintain pets health and diet to avoid health related risk. The pet feeder helps in keeping the food clean. The bowl automatically open and close the cover. The data of previously feed or specified time will be saved in the Aafruit IO cloud.

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