

## **GOOGLE ASSISTANT CONTROLLED IOT BASED PET FEEDER USING NODE MCU**

<sup>1</sup>DR S Sumathi , <sup>2</sup>Adlin Jessie T, <sup>3</sup>Deepa G, <sup>4</sup>Jeevithaa S

<sup>1</sup>Professor, <sup>2,3,4</sup>UG scholars, Department of Electronics and Communication Engineering,

Adhiyamaan College of Engineering (AUTONOMOUS), Hosur

### **ABSTRACT**

The IoT-based pet feeding voice controller is an innovative solution designed to automate and streamline pet feeding schedules, offering convenience and flexibility for pet owners. This system integrates a mobile app, voice control, and Wi-Fi connectivity to enable users to remotely manage their pets' feeding times from anywhere. The device is equipped with a servo motor that dispenses precise food portions at user-defined intervals, which can be set through the app or adjusted via voice commands. A robust power supply with a voltage regulator ensures reliable operation of all components, while an LCD display provides real-time feedback on feeding times, system status, and power levels. The voice control feature allows users to initiate or modify feeding schedules hands-free, making it ideal for busy pet owners or those with mobility challenges. This automated feeder ensures pets are fed consistently and on time, even when owners are away, enhancing pet care and reducing the risk of missed feedings. The combination of automation, remote control, and voice functionality makes this IoT-based pet feeder a comprehensive solution for modern pet care needs.

## I INTRODUCTION

In today's fast-paced world, ensuring pets are fed on time can be a challenge, especially for busy pet owners or those with unpredictable schedules. The IoT-based pet feeding system with voice control addresses this issue by automating the pet feeding process, offering a seamless solution that combines convenience, precision, and flexibility. This system allows pet owners to set and adjust feeding schedules remotely through a mobile app, making it easier to manage meal times even when away from home. By integrating voice control functionality, the system further enhances ease of use, enabling users to modify feeding times with simple voice commands. The feeder operates using a servo motor to dispense accurate portions of food at preset intervals, ensuring pets receive the right amount of nutrition on time. With additional features like real-time status updates on an LCD display and a reliable power supply system, this IoT-based pet feeder not only simplifies the feeding routine but also provides peace of mind, knowing that pets are well-fed, even in the owner's absence. The objective of the IoT-based pet feeding voice controller is to create a reliable, automated system that simplifies pet care by ensuring pets are fed on time, regardless of the owner's schedule. The system aims to offer pet owners flexibility and convenience by enabling them to remotely set, adjust, and monitor feeding times through a mobile app and voice commands. By incorporating a precise servo motor for accurate food dispensing and providing real-time status updates on an LCD display, the solution seeks to enhance feeding consistency and minimize human error. Additionally, the system's integration with Wi-Fi connectivity ensures it can be easily controlled from anywhere, providing peace of mind to pet owners who may be away. Ultimately, the objective is to develop a user-friendly, efficient, and reliable automated pet feeding solution that improves the overall quality of life for both pets and their owners.

## **II LITERATURE REVIEW**

**Automated Feeding Mechanisms** One of the critical aspects of automated feeders is the mechanism for dispensing food. Devices generally use servo motors or stepper motors to release measured portions. Research by Smith et al. (2017) highlights how stepper motors can provide high precision in portion control, ensuring that pets receive consistent quantities of food at every feeding session. Weight sensors are often integrated to measure the food released accurately, as discussed by Johnson and Kumar (2019).

**Feeding Schedules and Timing** Scheduling feeding times is essential for maintaining pet health. Automated feeders typically use real-time clock (RTC) modules for accurate timekeeping. Research by Patel et al. (2018) emphasizes the use of microcontrollers to control feeding schedules, ensuring pets are fed on time even in the absence of their owners. Customizable feeding times and portion sizes are key features of many feeders, allowing pet owners to tailor the device to their pet's needs.

**Remote Monitoring and Control** Modern feeders integrate remote control features using mobile apps or web interfaces. These systems use Bluetooth, Wi-Fi, or cloud connectivity to allow owners to monitor and control the feeder from anywhere. Studies by Gupta et al. (2020) describe how cloud-connected feeders enable users to track feeding history and receive notifications about the feeder's status.

## **III EXISTING SYSTEM**

The existing pet feeding systems typically rely on manual feeding or basic timed dispensers that can be set to release food at specific intervals. However, these systems often lack the flexibility and convenience of remote control or accurate portioning. Many current solutions require direct interaction with the feeder or limited control, which can be cumbersome for pet owners with busy schedules or those who are frequently away from home. Some systems offer basic feedings, but they do not integrate advanced features such as voice control, real-time status monitoring, or Wi-Fi connectivity for remote management. As a result, pet owners may struggle to ensure consistent feeding times,

accurate portion sizes, or have difficulty making adjustments when needed.

The existing systems, while functional, often fail to provide the level of automation and user convenience required for a seamless and hands-off pet care experience.

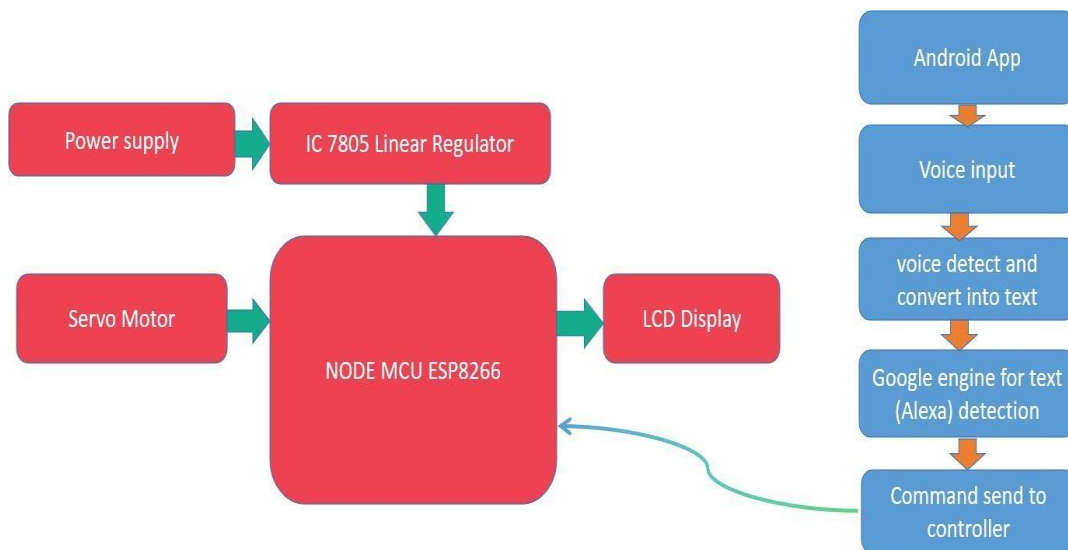
**Disadvantages of Manual Pet Feeders:**

**Inconsistent Portion Control:** The amount of food dispensed may vary with each use, leading to potential overfeeding or underfeeding. **Time-Consuming:** Owners need to regularly refill and reset the feeder, which can be inconvenient for busy individuals.

**No Automation:** These feeders lack features like scheduled feeding times, which means pet owners must be present to feed their pets. **Labor-Intensive:** Unlike automatic feeders, manual feeders require physical effort, which may not be ideal for owners with physical limitations.

**Maintenance:** Regular cleaning and maintenance are needed to prevent food buildup or contamination, which can be time-consuming and labor-intensive. **Not Ideal for Travel:** Manual feeders are not suitable for pet owners who travel frequently, as they require constant supervision and refill.

**IV BLOCK DIAGRAM**



*Fig 1: Basic Block Diagram Of Google assistant controlled Pet Feeder*

The figure is the block diagram of Google assistant controlled Pet Feeder which includes Node MCU, LCD Display, Power supply, Servo Motor, IC7805 Linear Regulator and Google assistant voice command.

## **V PROPOSED METHODOLOGY**

The proposed system is an advanced IoT-based pet feeding solution designed to automate and simplify pet feeding routines. It integrates a mobile application, voice control functionality, and Wi-Fi connectivity to provide pet owners with a seamless, remote management experience. The system is composed of a servo motor that accurately dispenses pet food in predefined portions, ensuring pets receive the correct amount of food at scheduled intervals, whether the owner is at home or away. The user can set and modify feeding schedules through the mobile app or by using simple voice commands, offering flexibility and convenience. An LCD display on the feeder provides real-time feedback, showing the current status of the device, upcoming feeding times, system errors, and power levels. The IoT integration allows users to access the pet feeder remotely via a Wi-Fi-enabled device, enhancing ease of use. This proposed solution aims to streamline pet care, offering pet owners greater control over feeding times and ensuring pets are properly fed on schedule, even in the absence of their owners.

## **VII ADVANTAGES**

**Remote Control and Convenience:** You can control the feeder from anywhere using voice commands via Google Assistant or through the Google Home app, making it easy to feed your pet even when you're not home. **Scheduled Feedings:** With the integration of Google Assistant, you can set specific feeding times and portion sizes. This ensures your pet gets fed consistently, even if you're away for work or travel. **Voice Commands:** Simply say, "Hey Google, feed my pet," to dispense food at the

desired time.

This hands-free operation is especially convenient for busy petowners.

**Portion Control:** The feeder can dispense a precise amount of food each time, helping to regulate your pet's diet and prevent overfeeding or underfeeding.

**Customizable Feeding Times:** You can easily schedule multiple feeding times throughout the day, accommodating your pet's dietary needs, whether they're on a strict meal schedule or need smaller, more frequent meals. Great for Busy or Travel-

**Heavy Lifestyles:** If you travel or work long hours, the ability to control your pet's feeding schedule remotely gives peace of mind that your pet is being fed on time.

**Increased Flexibility:** Google Assistant's voice commands and app-based control make it easy to adjust the feeding schedule without physical interaction.

## **VIII APPLICATION**

**Remote Feeding:** Allows pet owners to feed their pets from anywhere, providing peace of mind when they are at work or traveling. **Scheduled Feeding:** Ensures

pets are fed on time, promoting better health and routine for pets. **Monitoring:**

With potential camera integration, owners can monitor their pets' feeding

habits and ensure they are eating properly. **Elderly and Disabled Assistance:** Helps

elderly or disabled individuals care for their pets without the need for physical

exertion. **Multi-pet Management:** Efficiently manages feeding times for

households with multiple pets, ensuring each pet gets the correct amount of food.

**Travel Convenience:** Ideal for pet owners who frequently travel, ensuring pets are fed without relying on neighbours or pet-sitting services. **Customized Feeding**

**Plans:** Allows for tailored feeding schedules and portions, accommodating pets with specific dietary needs or health conditions.

## **IX RESULTS AND CONCLUSION**

In conclusion, the IoT-based pet feeding voice controller offers an innovative and practical solution to automate pet feeding, providing convenience, accuracy, and flexibility for pet owners. By integrating features like mobile app control, voice commands, Wi-Fi connectivity, and precise food dispensing, the system ensures that pets are fed consistently and on time, even when owners are away. The real-time status feedback via the LCD display, combined with a reliable power supply, enhances the system's reliability and ease of use. This proposed solution not only simplifies pet care routines but also provides peace of mind to pet owners, knowing that their pets' feeding schedules are being managed efficiently and effectively. With its user-friendly design and seamless integration of modern technology.

## **X FUTURE SCOPE**

The future scope for the remotely controlled pet feeder using Google Assistant includes enhanced integration with other voice assistants like Amazon Alexa and Apple Siri, allowing users to choose their preferred platform. It can also integrate with smart home ecosystems for a seamless user experience. Advanced features could include AI-driven analysis of pets' eating habits and real-time monitoring through added cameras and sensors. Developing a dedicated mobile app can enhance user control with detailed feeding logs and notifications, and multi-user support for households where multiple family members care for pets. These enhancements can significantly improve functionality, user experience, and reliability, making the pet feeder a comprehensive and appealing solution for pet owners.

## XI REFERENCES

- 1) Manimaran, H., Bhuvana, S. D., Akshaya, N., Lekha, G. J. H., & Manohar, M. (2022). *Automatic Pet Feeder. International Journal of Recent Scientific Research*, 3(9), 33913-33917
- 2) Johnson, M., & Kumar, S. (2019). *Weight-based portion control in pet feeding devices. Journal of Emerging Technologies in Smart Devices*, 5(3).
- 3) Gupta, R., & Verma, K. (2020). *(oT integration in pet care devices. IEEE Access*, 8(10).
- 4) Deshmukh, P., & Nair, S. (2019). *Sensor applications in smart feeders. International Journal of Sensor Networks*, 7(2).
- 5) Chandra, S., & Singh, P. (2021). *Energy-efficient designs for smart pet feeders. IEEE Transactions on Sustainable Computing*, 9(3).
- 6) Lee, J., & Park, H. (2022). *Pet-proofing automated feeding systems. Journal of Consumer Electronics Design*, 12(1).
- 7) Sharma, P., & Patel, R. (2023). *AI-driven automated pet feeding solutions. Journal of Artificial Intelligence Applications*, 4(2).
- 8) Smith, R., & Jones, T. (2017). *Precision dispensing in automated pet feeders. International Journal of Mechanical Design*, 9(4).





















