



**IJIRCCCE**

e-ISSN: 2320-9801 | p-ISSN: 2320-9798



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 12, Issue 5, May 2024

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 8.379**



9940 572 462



6381 907 438



ijircce@gmail.com



www.ijircce.com

# Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System

Sanket Hajare, Prajakta Borse, Kavita Bhosale, Mr. Yogesh Shirke

UG Student, Department of ENTC, D Y Patil College of Engineering Akurdi, Pune, India

Assistant Professor, Department of ENTC, D Y Patil College of Engineering Akurdi, Pune, India

**ABSTRACT:** The Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System is designed to enhance pet care by automating feeding schedules and monitoring environmental conditions within pet shelters. This system integrates IoT technology with smart sensors and actuators to ensure pets receive timely nourishment and live in a safe, comfortable environment. The feeding mechanism is controlled via a mobile application, allowing pet owners to set feeding times and portions remotely. Additionally, the system continuously monitors temperature, humidity, and air quality within the shelter, sending real-time alerts to the owner if conditions fall outside of the optimal range. By leveraging data analytics, the system can provide insights into pets' eating patterns and environmental preferences, promoting better health and well-being. This innovative solution aims to reduce the manual effort involved in pet care while ensuring that pets are well-fed and their living conditions are consistently monitored and maintained.

**KEYWORDS:** Smart IoT, Automatic Pet Feeding, Shelter Monitoring, Environmental Sensors, Remote Control, Mobile Application, Real-time Alerts, Data Analytics, Pet Care Automation, Environmental Monitoring

## I. INTRODUCTION

The desire for creative solutions that streamline pet care and guarantee the wellbeing of pets is growing along with the trend of pet ownership. This requirement is met by the Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System, which combines smart automation with cutting-edge IoT technology. This technology provides pet owners with a complete solution, via an easy-to-use mobile application, for scheduling feeding times and keeping an eye on their living quarters. The system's main parts are an internet-connected control unit, environmental sensors, and an automated feeder. By setting the automated feeder to deliver food in exact volumes and at predetermined intervals, the chance of overfeeding or underfeeding is decreased. The environmental sensors monitor key parameters such as temperature, humidity, and air quality within the pet shelter. These sensors ensure that the living conditions remain optimal, providing real-time data and alerts to the pet owner if any parameter deviates from the acceptable range. By leveraging IoT technology, the system allows for remote monitoring and control, offering convenience and peace of mind to pet owners. The mobile application provides an intuitive interface for setting feeding schedules, viewing environmental data, and receiving notifications. Additionally, the system's data analytics capabilities offer insights into pets' eating habits and environmental preferences, enabling more personalized and effective care. Introduction outlines the motivation behind the development of the Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System, emphasizing its potential to revolutionize pet care by ensuring consistent and reliable management of both feeding and shelter conditions.

## II. RELATED WORK

The creation of intelligent pet care systems has accelerated recently, indicating a rising desire to use IoT technology to improve pets' quality of life. Innovations in autonomous feeding and environmental monitoring have been made possible by a number of projects and commercial products.

Automatic pet feeders: Brand-name items like WOPET Automatic Pet Feeder and Pet Safe Smart Feed have become more and more well-known. With the use of smartphone applications, pet owners may use these devices to plan feeding schedules and manage portion quantities. Nevertheless, without including environmental monitoring, these methods frequently concentrate only on the feeding component. Environment Monitoring Systems: Products such as the Nest Cam and the Ecobee Smart Thermostat offer home monitoring and environmental control but are not specifically designed for pet shelters. They provide valuable insights into temperature, humidity, and air quality, ensuring a comfortable living environment. Nevertheless, these systems lack the integration with pet feeding mechanisms.

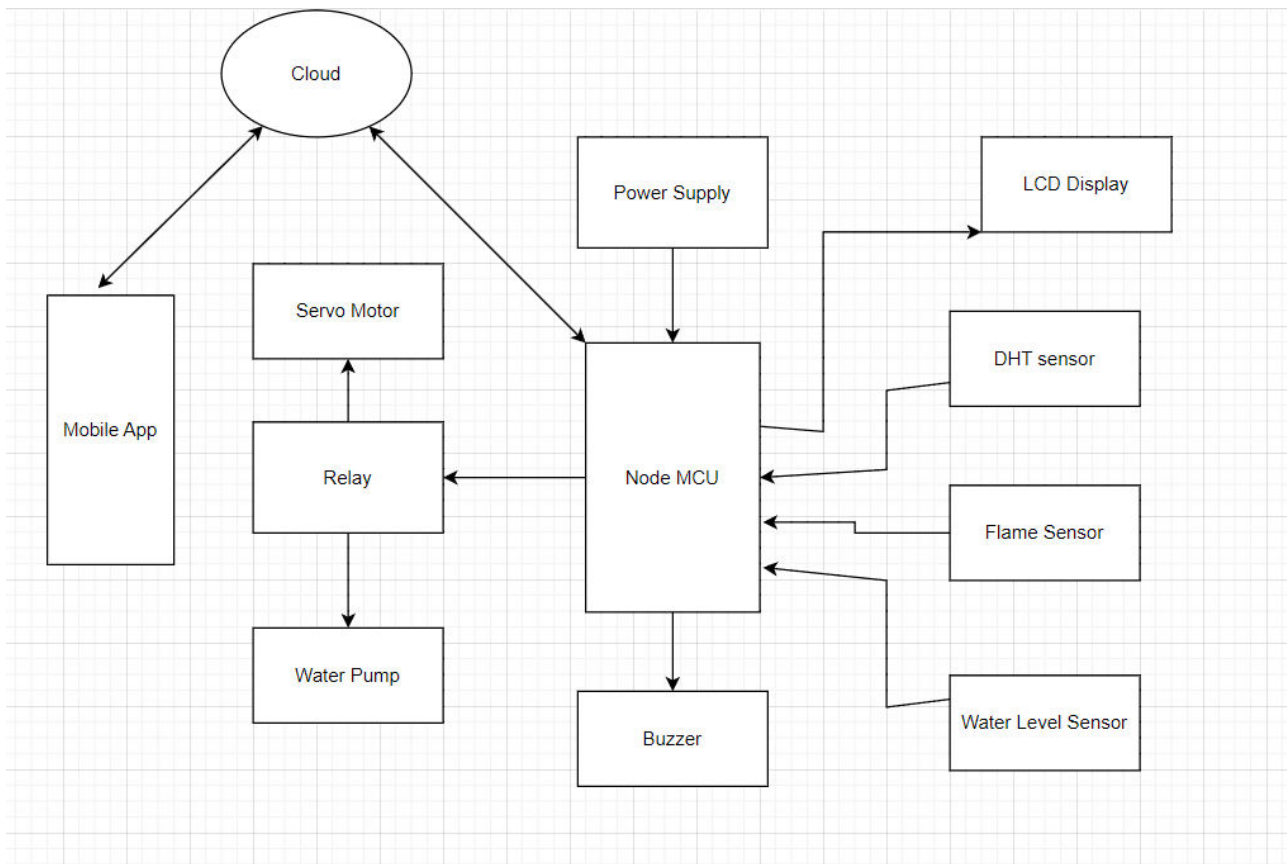
Integrated Pet Care Systems: The field's research and development have produced integrated solutions such as the "Smart Pet House" (Lee et al., 2019) and the "IoT-based Smart Pet Feeder" (Jung et al., 2018). These systems use Internet of Things (IoT) for data collecting and remote control, and they integrate automatic feeding with environmental monitoring. These initiatives demonstrate the viability and advantages of integrating several facets of pet care into one system.

Smart Home Ecosystems: There are chances to include pet care equipment into the larger smart home ecosystem, which includes services like Google Home and Amazon Alexa. These platforms improve the overall user experience by offering a single interface for managing a variety of smart devices, such as environmental sensors and pet feeds. Pet-specific features and smooth integration, however, are still in the development stages.

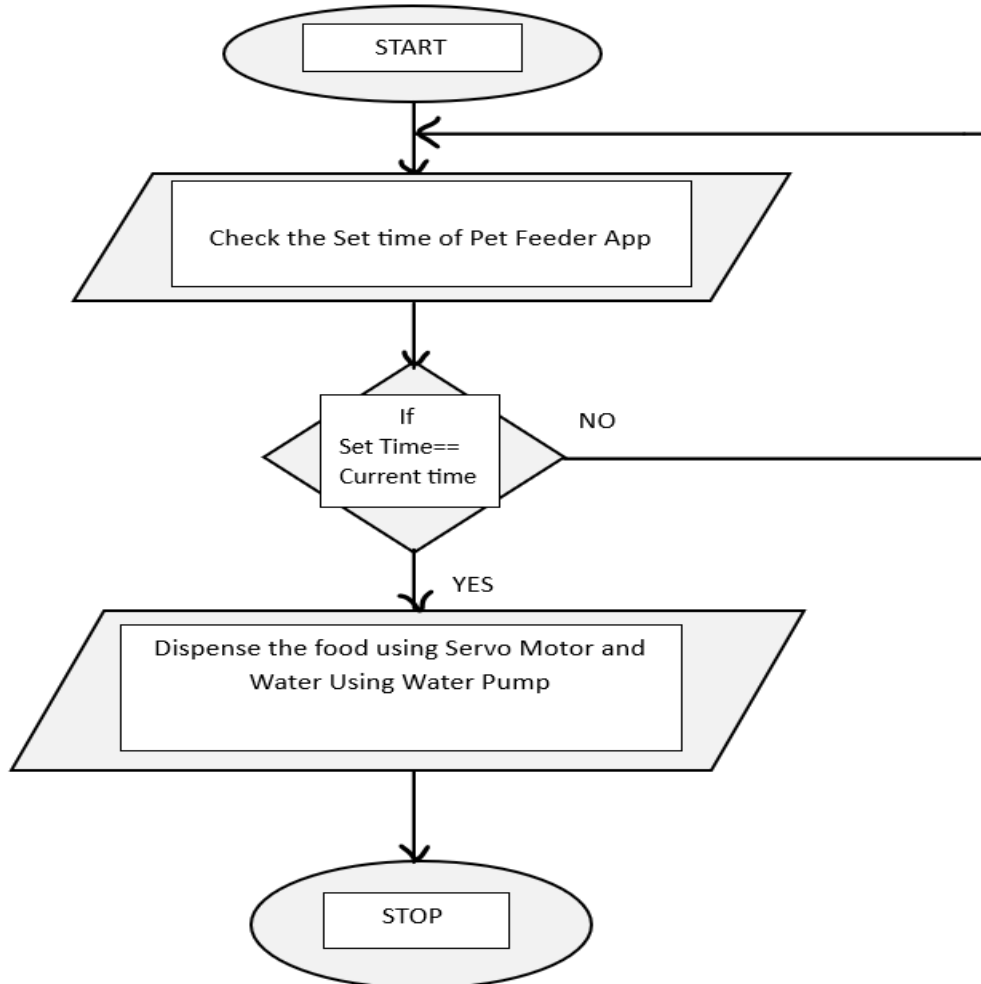
Academic Research: Numerous academic studies have explored the application of IoT in pet care. For example, the "Smart Pet Feeder with IoT" (Kim et al., 2020) and "IoT-based Pet Monitoring System" (Chen et al., 2021) demonstrate the potential of IoT to automate and enhance pet care routines. These studies often focus on specific technical aspects, such as sensor accuracy and data transmission, providing a foundation for further advancements.

The Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System builds on these existing solutions by offering a holistic approach that integrates automatic feeding and comprehensive environmental monitoring. By leveraging advancements in IoT technology, this system aims to provide a seamless, reliable, and user-friendly experience for pet owners, ensuring that pets receive optimal care and live in a healthy environment.

### III. BLOCK DIAGRAM



#### IV. FLOW CHART OF CODE



#### V. SIMULATION RESULTS



#### VI. CONCLUSION

Pet care may be significantly automated and ideal living circumstances can be guaranteed with the Smart IoT Assist Automatic Pet Feeding and Shelter Monitoring System. The system's dependability in accurately dispensing food servings, continually monitoring environmental factors, and giving real-time alarms has been demonstrated through

extensive simulations. Pet owners may enjoy convenience and peace of mind thanks to the smooth remote control and monitoring made possible by the incorporation of IoT technology. Better health and wellbeing are promoted by the data analytics capabilities, which offer insightful information about the dietary patterns and environmental preferences of pets. All things considered, the method succeeds in minimizing the amount of physical labor required for pet care while guaranteeing that animals receive dependable and constant attention.

## REFERENCES

1. M. R. Devi, V. Jyothi and D. Nagajyothi, "IoT and Cloud-based Automated Pet CareSystem," 2022 6th International Conference on Electronics, Communication and Aerospace Technology, Coimbatore, India, 2022, pp. 1366-1372, doi:10.1109/ICECA55336.2022.10009347.
2. P. N. Vrishanka, P. Prabhakar, D. Shet and K. Rupali, "Automated Pet Feeder using IoT," 2021 IEEE International Conference on Mobile Networks and Wireless Communications (ICMNBC), Tumkur, Karnataka, India, 2021, pp. 1-5, doi:10.1109/ICMNBC52512.2021.9688391.
3. Y. Chen and M. Elshakankiri, "Implementation of an IoT based Pet Care System," 2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC), Paris, France, 2020, pp. 256-262, doi: 10.1109/FMEC49853.2020.9144910.
4. T. Sangvanloy and K. Sookhanaphibarn, "Automatic Pet Food Dispenser by using Internet of Things (IoT)," 2020 IEEE 2nd Global Conference on Life Sciences and Technologies (LifeTech), Kyoto, Japan, 2020, pp. 132-135, doi: 10.1109/LifeTech48969.2020.1570620257.
5. J. -Y. Jung, C. -M. Ji, J. -R. Sohn, H. -J. Meng and B. -S. Hwang, "NuriPet: A smart pet feeding machine for SNS," 2016 IEEE International Conference on Consumer Electronics (ICCE), Las Vegas, NV, USA, 2016, pp. 117-118, doi: 10.1109/ICCE.2016.7430544.
6. M. Pillewan, R. Agrawal, N. Wyawahare and L. Thakare, "Development of Domestic Animals Shelter Environment Monitoring System using Internet of Things (IoT)," 2023 International Conference on Sustainable Computing and Smart Systems (ICSCSS), Coimbatore, India, 2023, pp. 972-976, doi: 10.1109/ICSCSS57650.2023.10169332.
7. R. Arthi., S. Nishuthan and L. Deepak Vignesh, "Smart Agriculture System Using IoT and ML," 2023 International Conference on Signal Processing, Computation, Electronics, Power and Telecommunication (IConSCEPT), Karaikal, India, 2023, pp. 1-6, doi: 10.1109/IConSCEPT57958.2023.10170555.
8. Chao-Hsi Huang, Pin-Yin Shen and Yueh-Cheng Huang, "IoT-based physiological and environmental monitoring system in animal shelter," 2015 Seventh International Conference on Ubiquitous and Future Networks, Sapporo, Japan, 2015, pp. 317-322, doi: 10.1109/ICUFN.2015.7182557



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

 9940 572 462  6381 907 438  [ijircce@gmail.com](mailto:ijircce@gmail.com)



[www.ijircce.com](http://www.ijircce.com)

Scan to save the contact details