Indian Journal of Electronics and Communication Engineering (INDJECE)
Volume 3, Issue 2 (May- August 2026), PP: 24-31.
https://www.doi.org/10.59256/indjece.20260302003
https://fdrpjournals.org/indjece
ISSN NO: 3048-6408

Automatic Pet Health Monitoring and Feeding System

Shabeena Tausif Hullur[1], Sanjay Babasaheb Patil[2]
[1]Electronics & Telecommunication, D Y Patil College of Engineering and Technology, Maharashtra, India.
[2]Associate Professor, Electronics & Telecommunication, D Y Patil College of Engineering and Technology, Maharashtra, India.

To Cite this Article: *Shabeena Tausif Hullur[1], Sanjay Babasaheb Patil[2], "Automatic Pet Health Monitoring and Feeding System", Indian Journal of Electronics and Communication Engineering, Volume 03, Issue 02, May-August 2026, PP: 24-31.*

Abstract*:* This paper introduces the design and building of a device that auto feeds food, analyzes pet animal health data and tracks their behavior. Pets require special attention, and for that, pet owners need to understand their pets better by regularly visiting pet care centers and learning about their behavior and health. Parameters such as a pet's body temperature, respiration rate, activity level, and emotional state can reveal a lot about the animal's health, preferences, and whether it is sick. Proper care includes feeding the pet and monitoring their eating and drinking habits, which gives important information to the owner. Animals regulate their body temperature through their lungs, which is seen when they pant after running or during heavy activity. This means that by tracking the pet's breathing rate, we can monitor its temperature continuously. A pet's movements also show how active it is, that is intimately connected to its well-being. Through analyzing the pet's actions with what is normally observed, we can detect if it is in a good mood or if it is unwell. Various sensors can gather this information and save it in the cloud for algorithmic processing. The analyzed information can subsequently be matched with standard health parameters, and the owner will be notified if any abnormal behaviors occur. This also enables the owner to regularly consult a veterinarian, without the need to take the pet to the clinic. Outdoor pets position can be track by GPS and GSM make easy to locate their position. A complete care is taken via this project.

Key Words: *Pet health monitoring, Pet feeder system, Automatic pet health, Gps tracker, Home safety.*

I.INTRODUCTION

As the population grows, people's needs have also grown. Many people in rural areas rely on the livestock sector for their security and food. At the same time, the rise of pet adoption has led more people to own dogs or cats. Because of this, it's important to take care of animal health and keep track of where animals are becomes necessary as we can't take pet anywhere while travel. Over the years, many researchers have worked on ways to monitor animal health, with auto food feeder but most of the methods either require cutting an animal's fur or inserting small chips into their body. Now, wearable sensors can be used on animals to detect sweat components, measure body temperature, observe behavior and movement, detect stress, analyze sounds, prevent diseases, identify certain chemicals, and even detect viruses and harmful organisms. These sensors allow pet owners to detect illnesses early, which help prevent the animal deaths. Additionally, pet owners can identify sick animals quickly to stop the spread of disease in a group of animals. Besides helping with animal health, these sensors can also make farm management easier and more reliable. Instead of using traditional techniques like taking notes, maintaining documentation, or utilizing basic tools without exchanging data, sensors connected to cellphones or handheld devices can collect and share data. To lessen the requirement for manual data entry, numerous methods have been created for these devices. Pet owners will find this technology incredibly useful as the data is simply seen on a computer or a cell phone. Four different kinds of sensors will be part of the system: a movement detector, a jaw activity detector, a breathing rate sensor, and a heart rate sensor. These sensors identify changes in an animal's health, and software may analyze the animal's status using the data and machine learning methods. The three components of the AIoT platform are cloud services, wireless connectivity, and sensors. In this project, the IoT device retains the gathered data in the cloud so that wildlife officers or pet owners can compare it to earlier data to see if the animal's health has change.

II. RELATED WORK

The necessity for precise, non-invasive respiratory rate (RR) monitoring in veterinary medicine—where conventional techniques like manual counting or human-designed vital sign monitors are frequently unreliable—is addressed in the study [1]. Existing wearable devices for pets primarily focus on activity tracking, with limited validated solutions for continuous physiological monitoring. Previous approaches adapted from human medicine, including plethysmography, resistance/capacitance sensors, and fiber optics, demonstrated potential but lacked veterinary-specific validation. In order to close this gap, the authors created a wearable IMU-based system that can estimate RR in dogs and tested it under anesthesia against clinical gold standards. With a mean RMSE of 1.68 breaths per minute, the results demonstrated that adaptive filtering is feasible for reliable monitoring.

This contribution expands the role of veterinary wearable's toward early disease detection, chronic condition management (e.g., mitral valve disease), and telemonitoring, highlighting future opportunities for integrating multi-sensor systems in real-life, unconstrained environments.

A thorough analysis of the new smart technologies revolutionizing contemporary pet care can be found in the publication [2] Earlier pet care largely depended on manual supervision and basic mechanical devices, but recent innovations have introduced

smart collars with GPS and health monitoring, pet cameras with two-way communication, IoT-enabled feeders, and automated litter boxes that ensure convenience, safety, and health management. Prior research also emphasizes the role of telemedicine, mobile health apps, interactive toys, and smart doors in addressing owner–pet separation, improving monitoring, and supporting behavioral training. However, many systems still face challenges such as connectivity issues, limited personalization, and durability concerns. By synthesizing these advancements, the authors highlight how IoT, AI, and automation are reshaping pet health, safety, and owner engagement, while also pointing toward future opportunities like predictive analytics, personalized nutrition, and AI-driven behavior tracking for holistic, technology-driven pet car.

The development of automated pet feeding systems and the expanding role of IoT in resolving pet care issues are examined in the study [3] Traditional feeders relied on simple mechanical dispensing or pre-set timers, but they often failed to manage portion control, specialized diets, or remote monitoring. Prior research introduced improvements such as servo-controlled feeders, web-based IoT applications, PIR sensors, and smartphone integration, demonstrating the potential of automation in managing feeding schedules and reducing obesity risks in pets. However, limitations remained, including lack of personalized control and restricted connectivity. The reviewed works highlight the shift toward intelligent feeders that incorporate wireless communication, mobile dashboards, and alert systems, ensuring timely feeding even in the owner's absence. Building on these studies, the authors propose an ESP8266-based IoT feeder integrated with motion detection, servo-controlled dispensing, Blynk dashboard, and IFTTT alerts, offering both automation and remote monitoring to enhance convenience and pet health management.

The use of wearable sensor data and deep learning algorithms to automatically identify canine activities for better pet health monitoring is examined in the paper [4]. The study uses sophisticated models like CNNs and RNNs to categorize activities like walking, sitting, jogging, and resting with great accuracy by utilizing accelerometer and gyroscope inputs. This approach addresses the limitations of manual observation by providing continuous, objective, and real-time monitoring, which is vital for detecting unusual behaviors or early signs of health issues. The literature highlights its contribution to veterinary healthcare, smart pet care systems, and animal wellbeing, while noting challenges like sensor placement and adaptability across different dog breeds.

The article [5] examines the development of automated pet feeding systems and identifies their shortcomings, most notably the incapacity of conventional feeders to offer remote control and real-time monitoring. Earlier works introduced prototypes such as microcontroller-based feeders with servo motors, timer-controlled food dispensers, and smart feeders integrating load cells, cameras, or screw conveyors for controlled feeding. While these systems improved convenience, they were often restricted to preset intervals, limited functionality, or lacked integration with mobile and IoT technologies. The reviewed literature shows a clear progression from simple mechanical dispensers to intelligent IoT-enabled devices capable of feedback control and remote operation. Building on these advancements, the authors propose an IoT-based robotic feeder using ESP32-CAM, ultrasonic sensors, servo motors, and Firebase integration, offering real-time food dispensing, pet monitoring, and smartphone-based control to address the shortcomings of earlier systems.

The paper [6] highlights the advancements in IoT-based smart feeding systems designed to address challenges like irregular feeding, pet obesity, and owner inconvenience. Earlier solutions ranged from mechanical feeders and timer-based dispensers to microcontroller-driven systems with limited automation, but these lacked flexibility, personalization, and remote monitoring capabilities. Studies have also explored RFID-based identification, IP camera integration, and MQTT-controlled feeding for enhanced automation, though many designs suffered from complexity, limited scalability, or lack of user-friendliness. Building on this prior work, the authors propose an Arduino Uno-based feeder integrating an RTC module, ultrasonic distance sensor, servo motor, buzzer, and LCD for scheduled, portion-controlled feeding and food-level monitoring. Compared to previous systems, their design offers a simpler, low-maintenance, and cost-effective solution that ensures timely feeding, prevents overfeeding, and enhances convenience for pet owners, while also laying a foundation for future extensions like RFID tags and camera-based monitoring.

The development of automated feeding systems and the incorporation of IoT to enhance pet care are reviewed in the study [7] Earlier feeders were primarily mechanical or timer-based, which lacked flexibility, remote accessibility, and adaptability to pets' nutritional needs. Research then progressed to microcontroller-driven and IoT-enabled feeders that incorporated sensors, mobile apps, and wireless communication for enhanced monitoring and control. However, many systems faced issues such as complexity, high cost, and limited real-time interaction. Building upon these developments, the authors propose a smart feeder using IoT platforms integrated with sensors and cloud services, enabling portion control, scheduling, and remote monitoring through a mobile application. Compared to earlier works, this system ensures convenience, reduces risks of overfeeding or neglect, and demonstrates the potential of IoT for personalized and reliable pet care management.

In order to overcome the shortcomings of traditional contact-based monitoring systems, the paper [8] investigates the application of UWB bio-radar for disaster rescue and victim detection. Previous studies have demonstrated the capability of UWB radar to penetrate obstacles and detect micro-movements such as respiration and heartbeat, making it a promising tool for locating survivors in rubble. However, challenges remain in distinguishing vital signs from noise, environmental interference, and non-living object movements. To overcome these issues, the authors integrate advanced signal processing methods, including time–frequency analysis and clustering algorithms, to improve the accuracy of detecting life states. Compared with earlier techniques, their approach provides enhanced reliability in identifying respiration and heartbeat under complex conditions, offering a significant advancement in non-contact vital sign detection for search-and-rescue applications

The paper [9] describes how IoT technology is used to create an integrated system that includes a pet food feeder, a water dispenser, and a litter box, which are the three most important items that pet owners worry about when they are busy or away from their dogs. The three subsystems are connected to the local network using Arduino Uno boards and Wi-Fi modules. Furthermore, the information gathered by each sensor is processed and displayed on a smartphone application. Thus, pet owners may access all information about their pet's food and water consumption, as well as the timing, duration, and frequency of excrement, through a single interface. In addition, the application includes a control function that allows pet owners to dispense food at any time and

from any location. The application displays an overall statistics chart with the above-mentioned values, which is updated periodically. We provide pet owners with an efficient, convenient, and low-cost pet care tool in the form of a smartphone application.

The paper [10] discuss, compare, and evaluate various wearable technologies that have recently been created to provide solutions for farmed animal health management. Animal health is a critical global issue that requires appropriate scientific methodologies. Innovative approaches, such as the use of biosensors for animal health management, have gained traction. These sensors are in varied stages of commercialization, but they are finding practical usage and application in the field of animal health. Precision cattle farming techniques, which cover a wide range of technologies, are being used, along with modern technology including microfluidics, sound analyzers, image detection techniques, sweat and saliva sensing, serodiagnosis.

III.EXISTING SYSTEM

The Pet Health Monitoring and Feeding System was developed by a research team from the Department of Information Science of Kyushu University in Japan. People are getting pets as companions more and more. This means we need ways to take care of them. Pets need to eat we need to check if they are healthy and they need to see a doctor sometimes. All of this is necessary for the pets to be happy and healthy. Pets are, like part of the family. They need our care to stay that way. Many pet owners, however, have busy schedules or spend long periods away from their pets. These factors contribute to the negative impact on the health and quality of life of these pets. To address these issues, there is a need for smart and automated systems that support responsible pet ownership. Recent advancements in the Internet of Things (IoT), embedded systems, wireless communication and sensor technologies have enabled the development of intelligent pet care solutions. For instance, IoT-based devices can collect information from a variety of sensors and transmit that information to the pet owner via a mobile or web application. Also, these devices can be integrated with feeding systems and health-monitoring sensors to ensure that the pet is fed on time and that important physiological parameters are monitored. If any abnormalities are detected in the pet's physiology, the system can alert the owner of the pet, allowing for prompt action to be taken to consult with a veterinarian. The Pet Health Monitoring and Feeding System aims to solve the challenges mentioned above by employing automation and monitoring of pets. This project demonstrates the use of IoT, sensors, cloud computing and embedded systems to solve a real-world problem. It provides both convenience for pet owners as well as a means of supporting the health of pets. So, this project represents a important step in the development of smart pet management solutions.

IV.PROPOSED SYSTEM

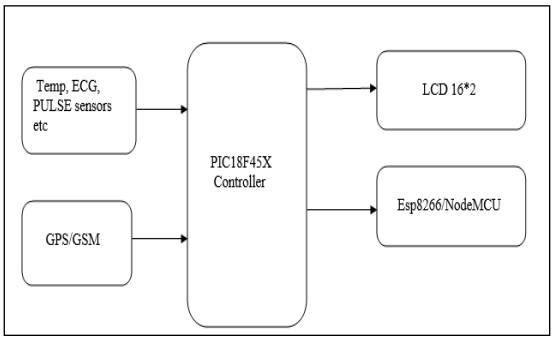

Fig 1.1: Pet Feeding System

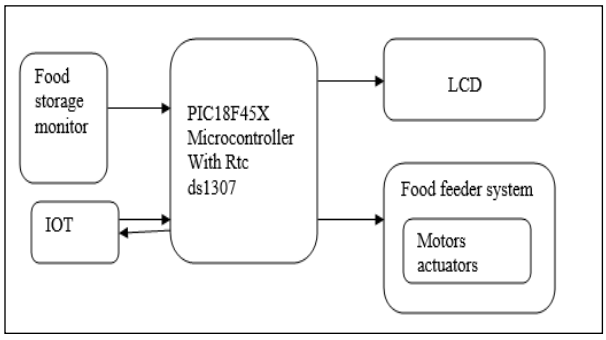

Fig 1.2: Pet Health Monitoring System

The animal monitoring technology being developed detects animal physiological parameters such as body temperatures, physical motions such as sitting, standing, eating, and heartbeat, as well as environmental information such as air temperatures and relative humidity. In addition, an extensive web-based animal husbandry software, the e-animal husbandry information network management system, was built to improve communication among veterinary hospitals, veterinarians, owners, farmers, and animal husbandry managers.

- **Proposed findings.**

An animal monitoring gadget designed for the neck includes a cloud IoT analytics platform that measures values and predicts the animal's health. The technique has a 90% accuracy rate and is suitable for usage with cattle.

- **Practical Implications**

Mobility applications can be applied to the technology created to check the health of the animal at any given location. The digitalized animal information is also used by the government to make sound decisions regarding funding and policy.

- **Social Implications**

The data about animal husbandry will be immediately available, and the implemented system can be easily extended to extensive environments with the help of wireless communications. The UID technique can be used to identify the details of an animal in a unique manner.

Having a pet at home is a wonderful experience, but one of the biggest challenges is feeding them consistently. Every pet has different dietary needs and eating habits, so it's important to carefully plan their meals to keep them healthy. If food isn't given

on time, it can affect a pet's health in a big way. That's why this new machine is a great solution to problems like malnutrition and obesity. The main advantage of this smart automatic feeder is how easy it is to use—you just need to fill it up every few days. It saves time and effort because it uses timers to give food to the pet multiple times a day, making sure they get the right amount of nutrition. Thanks to electronic automation and IoT technology, the machine offers a more personalized experience. It can also track how much food is given at each meal, helping to lower the risk of health issues.

This is especially helpful for busy pet owners who have irregular schedules, as the feeder can follow a customized plan to keep feeding regular. It's also useful for older people who may have trouble bending down to fill their pet's bowl every day. These devices can reduce both the physical and emotional stress that traditional feeding methods might cause. The design of this machine is also easier to clean and maintain compared to other models that have complicated parts, which can be hard to clean without taking them apart. The pet care industry is growing every year, so there's a real need for new, tech-based solutions. Automation can be carried out on its own by machines, but it becomes more effective when combined with monitoring and control features, especially with the help of the Internet of Things (IoT). As the world becomes more connected, IoT has created a vast network of devices that constantly share information. This interconnectedness is not just limited to businesses and organizations around the globe but is also happening in people's homes. Smart home devices are gaining popularity because they allow users to connect various gadgets, offering benefits like convenience, comfort, energy efficiency, and personalization. Personalization is a key goal of this project. By using automation and IoT, the user experience can be made much more tailored to individual needs.

This research proposes a pet feeder system that has two main parts: a measurement unit and a control unit. The system regularly checks the pet's weight and the amount of food left in the tank. On the control unit, the system can be operated in a smart mode where the user can set the energy value of the food and the type of pet. The system then measures the pet's weight again and calculates the correct amount of food to dispense based on the daily energy needs of the specific pet. The Smart Pet Food Dispensing Algorithm uses the food's energy value, the type of pet, and the pet's weight to control the flow rate of the feeder.

Fig 1.3: Flowchart of pet feeding system

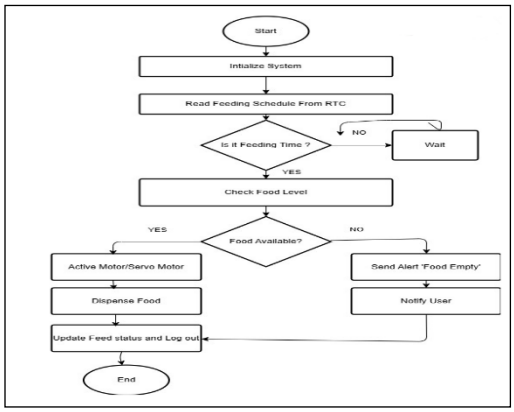

Fig 1.4: Flowchart of pet Health monitoring

V.COMPONENTS USED

1. LCD Display

LCD (liquid crystal display) modules are most commonly used electronic display system. The 16×2 LCD display is very simple and most reliable one which is commonly used in DIYs and circuits". The display has 2 rows and 16 columns, that is it can display 16 characters in each of the lines. These LCD modules are used for embedded projects because they are cheap, easily available and programmer friendly.

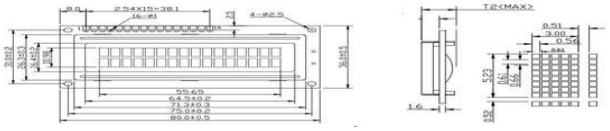

Fig 2.1: LCD display

2. Microcontroller

Fig 2.2: PIC18F4550 Microcontroller

The PIC18F is one of the families of pic microcontrollers and PIC18F4550 is its member. PIC18F4550 is one many of the advanced microcontrollers from the microchip era. This microcontroller is very famous in between hobbyist and beginners due

it functionalities and functions along with ADC and USB integration. There are different packages like DIP, QPF, and QPN of PIC18F4550 which are currently available.

3. DHT11 Sensor

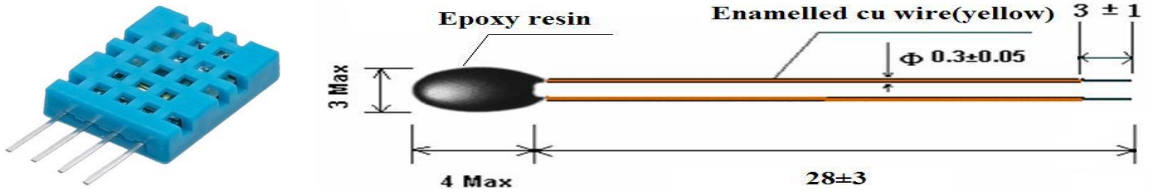

Fig 2.3: DHT11 sensor

Humidity is the amount of water vapour in the air. The level of humidity in the air influences a variety of physical, chemical, and biological processes. Humidity in industrial applications can have an impact on product costs as well as personnel health and safety. So, in the semiconductor and control system industries, humidity measurement is critical. Humidity measurement measures the quantity of moisture in a gas, which can be a combination of water vapour, nitrogen, argon, or pure gas... Humidity sensors are classified into two types according to their measuring units. They are relative and absolute humidity sensors. DHT11 is a digital temperature and humidity sensor.

4. Sound sensor module

Fig 2.4: Sound sensor

The sound detection sensor module for microcontroller detects whether or not sound exceeds a certain threshold value. Sound is detected via a microphone and sent into an LM393 op amp. The sound volume set point is controlled by an on-board potentiometer. When the sound level reaches the predetermined threshold, an LED on the module illuminates and the output is sent low.

5. Piezo crystal

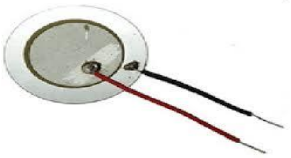

Fig 2.5: Piezo crystal

The sound detection sensor module for microcontroller detects whether or not sound exceeds a certain threshold value. Sound is detected via a microphone and sent into an LM393 op amp. The sound volume set point is controlled by an on-board potentiometer. When the sound level reaches the predetermined threshold, an LED on the module illuminates and the output is sent low.

6. Nodemcu and GPS tracker

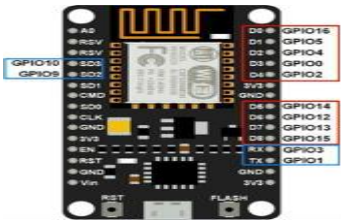

Fig 2.6 :Nodemcu

Fig 2.7:GPS/GSM

There is a growing need for reliable animal tracking solutions to ensure the safety and well-being of animals, whether they are livestock, pets, or wildlife. Traditional methods like physical fences have limitations, and this paper proposes an IoT-based animal tracking system to address these concerns. The proposed system employs a compact and wearable device equipped with a NodeMCU ESP8266 module and GPS technology. This device continuously transmits the animal's location data to a web-based monitoring platform. Caretakers can utilize this platform for real-time location tracking, visualizing the animal's current location on a map, and setting up geofences to receive alerts if the animal enters or leaves the designated area. The animal's path history is stored on the cloud for further references.

VI.EXPERIMENTAL RESULTS

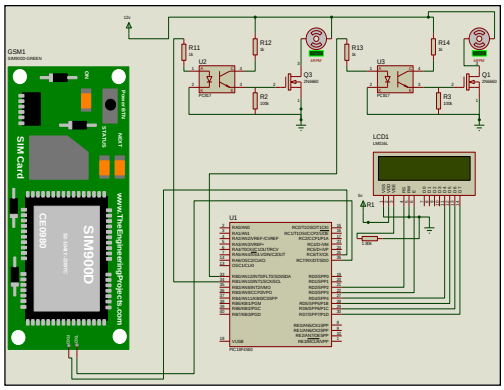

Fig 4.1: Circuit diagram of pet feeding system

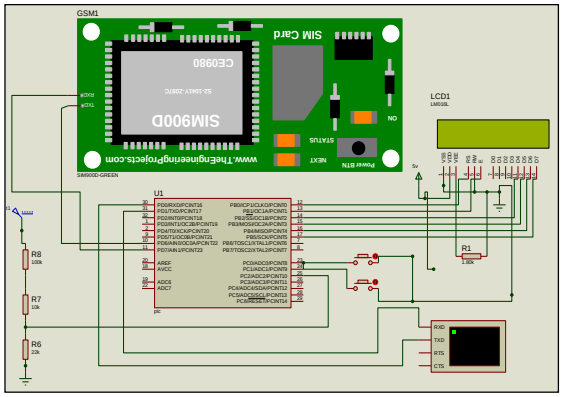

Fig 4.2: Circuit diagram of pet health monitoring

The Internet of Things (IOT) grows the network of objects that regularly share information as the world becomes more connected. IOT also makes the internet capable of handling everyday household items like light bulbs, locks, smart microwaves, and other technologies, along with smartphones and computers. More and more consumers are becoming interested in smart home gadgets and devices because they want all their electronics to be connected for greater convenience, comfort, energy efficiency, and especially personalization, which is one of the project's main focuses. This helps in taking care of small pets like dogs and cats when their owners are not around. With this design, the user can set the feeding time, the time between each feeding, and the amount of food given. Using this design, the user can adjust the feeding time, the interval between feedings, and the quantity of food dispersed. This paper introduces an automated pet feeder system based on the Internet of Things (IOT).More than 55% of dogs and cats are overweight, which can lead to serious health problems such as heart and lung diseases, kidney issues, and diabetes. The proposed device helps manage weight by providing pets with measured portions of food.

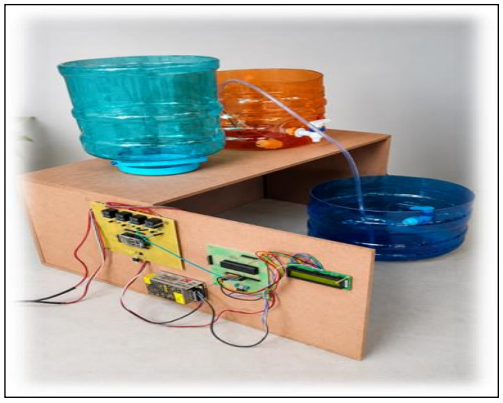

Fig 4.2: Model of pet feeding system

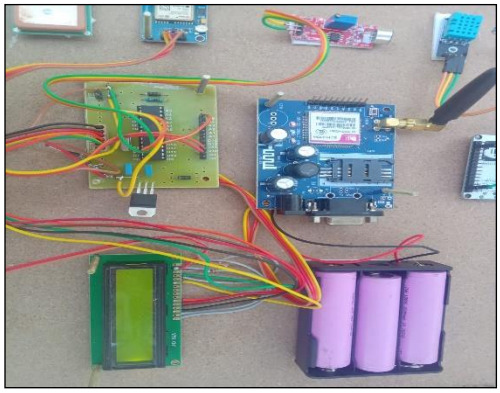

Fig 4.3:Model of pet health monitoring

The main components of the project include the pic18f4550 microcontroller for the smart automatic pet feeder, an internal timer module for managing feeding schedules, a sensor to check food levels, and a DC gear motor to control the flow of food.

The project includes a complete system for tracking animals in real-time using GPS, GSM, and SMS technologies. GPS is used to track the animals' exact location using satellite data, which helps know where they are at any time. GSM technology helps send messages about the animals' whereabouts quickly. This allows the system to send updates and alerts about their movement or condition. Also, the system uses an LM35 temperature, ECG sensor, Sound sensor to monitor the animals' body temperature, heart rate and noise. If an animal's any of this parameter goes up, which might mean they are sick or hurt, the system sends an automatic SMS. This message goes to people like forest officers so they can help the animal right away. The main parts of the system are avr atmega, pic, or nodemcu microcontrollers, GPS modules, GSM modules, and SMS modules. The microcontroller is the brain of the system, controlling everything else. The GPS module gets the location data, the GSM module sends the data, and the SMS module sends messages to the right people. Including IOT helps to monitor health of pet live at any time of instant.

VII.RESULT AND DISCUSSION

Automatic pet feeders work well and meet the goal of feeding pets when their owners are not around. They use a 9v D.C. supply. A servomotor rotates the propeller, delivering food into the plate as set in the NodeMCU. The entire system connects to a mobile phone through the internet.

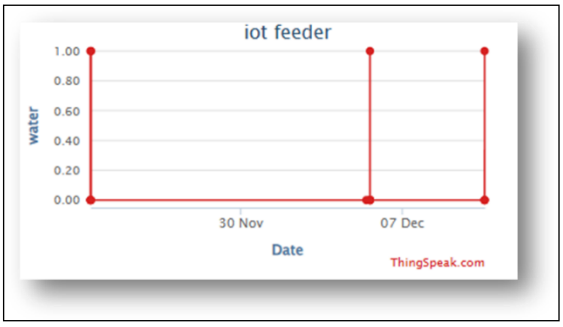

Fig 5.1: pet water feeding system

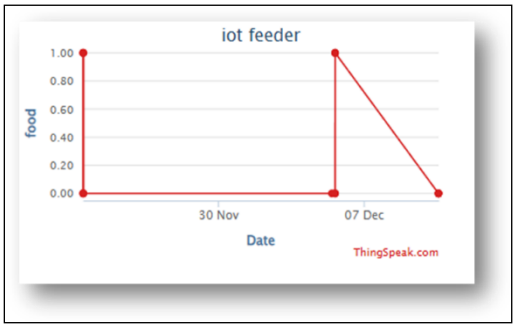

Fig 5.2: pet food feeding system

First, the owner can set the number of times and the amount of food to supply to the pet. Once the inputs are entered via the keyboard, the timer starts. When the timer reaches the set value, a fixed quantity of food is released for the pet. If the food isn't consumed, additional food will not be released. Circuit voltage measurements ensure safe operation. The main benefits observed from this prototype include that pets receive their food on time, even if their owners are absent. This means owners do not have to worry about their pets' meals when they are away. With this device, no one needs to come from outside to feed the pet, which also improves home safety. It's easy to operate, and there are no complicated steps involved. The system requires very low battery power to function.

IoT-based pet health monitoring systems have shown promising results in improving pet care and well-being. By using wearable sensors and smart devices, these systems continuously track important health indicators like body temperature, heart rate, activity level, location, and sleep patterns in real time. The collected data is sent to a cloud platform or mobile app, where pet owners and veterinarians can view detailed health reports and receive alerts for any abnormal conditions. This allows for early diagnosis of illnesses, timely medical intervention, and better preventive care. Overall, using IoT in pet health monitoring improves pet safety, lowers the risk of serious health issues, and gives owners more confidence and convenience in managing their pets' health.

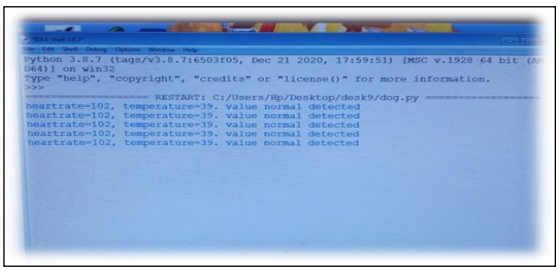

Fig 5.3: pet Health prediction

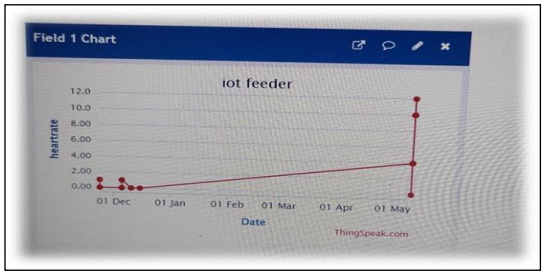

Fig 5.4: pet heart rate result

VIII.CONCLUSION

The IoT Based Pet Feeding System aims to provide a practical and effective solution for feeding pets when the owner is away. This invention allows the owner to deliver food to their pet from anywhere in the world, with little effort and minimal manual labor. It leverages Internet of Things technologies to wirelessly connect the entire system to smartphones. The system is built using simple and economical components that are both resilient and long-lasting. A major and distinguishing characteristic of this project is the two-way communication between the owner and the pet, which is not present in other similar systems. A feeder storage monitor is also part of the system. It notifies the owner when the food level drops by sending a message to the microcontroller. The owner has the option to manually change the feeding time, postponing or advancing the scheduled feeding, or to replenish the food. The automatic pet feeder is among the most recent developments in pet feeding. It will help pet owners take care of their animals while they are away from home. Additionally, their pets might be fed if the owners are not there. The purpose of automated pet feeders is to help pet owners take care of their animals. Wireless or infrared remote control will be used to operate an automated device. The machine-driven dishwasher will automatically dispense the quantity of food at the exact moment that the user selects using wireless IoT technology. It is important for users to remember that their dogs also require careful dietary monitoring. Pet owners may find it challenging to give their animals the care they need due to life's obligations. Users can be confident that their cherished pet will always be taken care of and fed on time, even if they are suddenly away from home or simply want one less duty to worry about.

REFERENCES

1. A. Angelucci, F. Birettoni, A. Bufalari and A. Aliverti, "Validation of a Wearable System for Respiratory Rate Monitoring in Dogs," in IEEE Access, vol. 12, pp. 80308-80316, 2024, doi: 10.1109/ACCESS.2024.3408904.
2. M. Tauseef, E. Rathod, S. M. Nandish and M. G. Kushal, "Advancements in Pet Care Technology: A Comprehensive Survey," 2024 4th International Conference on Data Engineering and Communication Systems (ICDECS), Bangalore, India, 2024, pp. 1-6, doi: 10.1109/ICDECS59733.2023.10503555.
3. S. S. Tippannavar, G. Raghavendra, R. Jain, and P. Golasangi, "SPF: Smart Pet Feeder using IoT for Day-to-Day Usage," International Journal for Research in Applied Science and Engineering Technology (IJRASET), vol. 11, no. 1, pp. 299– 304, Jan. 2023, doi: 10.22214/ijraset.2023.4840
4. A. Hussain, S. Ali, Abdullah and H. -C. Kim, "Activity Detection for the Wellbeing of Dogs Using Wearable Sensors Based on Deep Learning," in IEEE Access, vol. 10, pp. 53153- 53163, 2022, doi: 10.1109/ACCESS.2022.3174813.
5. D. L. S. T. Jayarathne, H. K. A. Jayasinghe, and H. M. R. G. Herath, "Design and Implement of IoT- Based Pet Food Feeder Robot," in Proc. 29th Annual Technical Conference of IET Sri Lanka Network 2022 , Colombo, Sri Lanka, Aug. 2022
6. P. N. Vrishanka, P. Prabhakar, D. Shet, and K. Rupali, "Automated Pet Feeder using IoT," in Proceedings of the 2021 IEEE International Conference on Mobile Networks and Wireless Communications (ICMNWC), Tumkur, Karnataka, India, December 3–4, 2021, pp. 1–5, doi: 10.1109/ICMNWC52512.2021.9688391.
7. Y. Quiñonez, C. Lizarraga, R. Aguayo, and D. Arredondo, "Communication architecture based on IoT technology to control and monitor pets feeding," J. Universal Computer Science, vol. 27, no. 2, pp. 190–207, Feb. 2021, doi: 10.3897/jucs.65094.
8. Y. Ma, P. Wang, H. Xue, F. Liang, F. Qi, H. Lv, X. Yu, J. Wang, and Y. Zhang, "Non-Contact Vital States Identification of Trapped Living Bodies Using Ultra-Wideband Bio-Radar," IEEE Access, vol. 9, pp. 6550–6559, 2021.
9. Y. Chen and M. Elshakankiri, "Implementation of an IoT based Pet Care System," in Proceedings of the 2020 Fifth International Conference on Fog and Mobile Edge Computing (FMEC), Paris, France, Apr. 20–23, 2020, pp. 256–262,doi: 10.1109/FMEC49853.2020.9144910
10. S. Neethirajan, "Recent advances in wearable sensors for animal health management," Sensing and Bio-Sensing Research, vol. 12, pp. 15–29, Feb. 2017, doi: 10.1016/j.sbsr.2016.11.004
11. Miss. PrajaktaSukumarManakapure, Prof. Mr. A. V. Shah, "Movement Monitoring of pet animal using Internet of Things", International Research Journal of Engineering and Technology (IRJET), May2018 www.irjet.net