THE SCIENCE WORLD
A Monthly e Magazine
ISSN:2583-2212
Popular Article
April, 2026 Vol.6(4), 1009-1013

Automation In Poultry Houses and Its Maintenance

Ramana D. V.[1*], Savsani H. H.[2], Pandya M. R.[1], Bhargav J. Solanki[3] and Tathagat P. Khobragade[1]

[1]M.V.Sc., Department of Animal Nutrition, College of Veterinary Science and Animal Husbandry, Junagadh, Kamdhenu University, Gujarat.

[2]Associate Professor & Unit Head, Bull Mother Farm, Kamdhenu University, Amreli, Gujarat.

[3]Assistant Professor, Vrundavan Polytechnique in Animal Husbandry College, KU, Jasdan, Gujarat.

Corresponding Author: RAMANA D. V.
Email id: darshanramana77@gmail.com
doi.org/10.5281/ScienceWorld.19727489

Abstract

Automation in poultry houses involves the use of advanced technologies to manage feeding, watering, climate control, egg collection, and health monitoring of birds. These systems improve efficiency, reduce labour requirements, and enhance overall farm productivity. Automated feeding and watering systems ensure a consistent nutrient and water supply, while climate control systems maintain optimal environmental conditions for bird health and performance. Egg collection systems minimize breakage and labour, and monitoring systems enable real-time data-based decision-making. Despite high initial investment and the need for technical expertise, automation offers long-term benefits such as improved animal welfare, higher production, and reduced operational costs. Proper maintenance, including regular inspection, preventive servicing, and staff training, is essential for reliable system performance. Overall, the adoption of automation in poultry farming supports sustainable, efficient, and profitable production systems.

Introduction

Automation in poultry farming is emerging as a transformative approach to modern livestock management, driven by the need for higher productivity, better resource utilization, and improved animal welfare. In recent years, poultry houses have increasingly adopted advanced technologies to automate key operations such as feeding, watering, climate control, egg collection, and health monitoring (ASABE, 2015). These automated systems not only reduce dependence on manual labour but also ensure precision, consistency, and efficiency in farm management. By maintaining optimal environmental conditions and providing real-time

data, automation helps farmers make informed decisions and minimize losses. Although the initial investment and technical requirements may pose challenges, the long-term benefits make automation a promising solution for sustainable and profitable poultry production.

Automated Systems in Poultry Houses

a) Feeding System

Automated feeding systems play an important role in modern poultry farming by ensuring birds receive the right amount of feed at regular intervals according to their growth stage. These systems use feed silos for bulk storage, along with conveyors and augers to deliver feed efficiently to the birds, while control units regulate feeding schedules and quantities. As a result, feed is distributed uniformly, labour requirements are reduced, and feed wastage is minimized. However, these systems require regular calibration for accuracy, involve high initial installation costs, and depend on a continuous power supply for smooth operation.

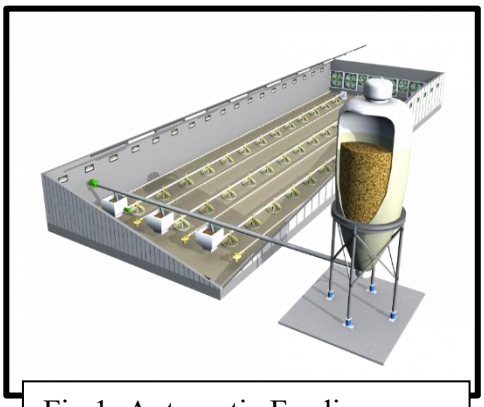

Fig 1: Automatic Feeding

Fig 2: Conveyer and Augers

b) Watering Systems

Automated watering systems ensure a continuous supply of clean and safe water, which is essential for poultry health and growth. These systems use nipple drinkers to provide water directly to birds while minimizing spillage and contamination, along with pressure regulators to maintain uniform water flow and filtration units to keep the water free from impurities (IPC, 2021). As a result, they reduce labour, ensure proper hydration, and prevent wastage. However, regular cleaning and maintenance are necessary to avoid blockages, and

Fig 3: Nipple Drinkers

Fig 4: Water Pressure

Fig 5: Water Filtration System

Official Website
www.thescienceworld.net
thescienceworldmagazine@gmail.com
Published 15/04/2026

any system failure can lead to serious health issues due to water shortage. Additionally, the initial installation cost can be relatively high.

c. Climate Control Systems

Automated climate control systems help maintain an ideal environment in poultry houses by regulating temperature, humidity, and ventilation. They use heaters and coolers to control temperature, ventilation fans to ensure proper air circulation, and sensors to continuously monitor environmental conditions. Control units automatically adjust these factors based on real-time data, creating a stable and comfortable environment for birds. This reduces stress, improves health, and enhances productivity. However, these systems are complex and require technical knowledge for maintenance, involve high installation costs, and depend on a continuous power supply for proper functioning.

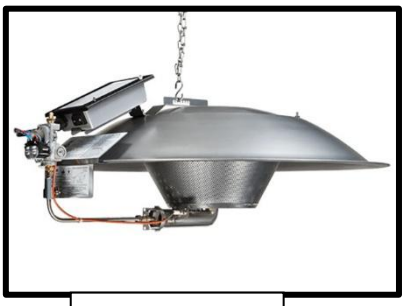

Fig 6: Heater

Fig 7: Cooler

Fig 8: Ventilation

d) Egg Collection Systems

Automated egg collection systems make the process of collecting, sorting, and packing eggs faster and more efficient. These systems use conveyor belts to move eggs from nests to collection points, sorting machines to grade them based on size and quality, and packing machines to place them into trays or cartons. This reduces manual labour, lowers the risk of egg breakage and contamination, and improves overall efficiency. However, such system requires regular maintenance to avoid mechanical problems, involve high initial investment, and may be difficult to integrate with existing farm setups.

Fig 9: Conveyer belt

Fig 10: Egg Sorting Machine

Fig 11: Egg Packing

Official Website
www.thescienceworld.net
thescienceworldmagazine@gmail.com
Published 15/04/2026

e) Monitoring and Data Collection Systems

Monitoring and data collection systems in poultry farms provide real-time information that helps farmers make better decisions. These systems use cameras to observe bird behaviour and health, sensors to track feed and water intake, body weight, and environmental conditions, and software platforms to analyze the data and give useful insights (WPSJ, 2020). This helps in early detection of health or environmental problems and improves overall farm management and productivity. However, these systems require technical skills for data handling, involve setup and subscription costs, and depend on reliable internet connectivity for smooth operation.

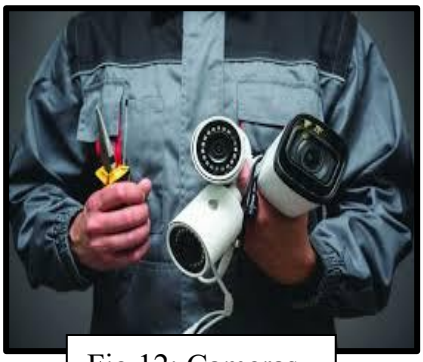

Fig 12: Cameras

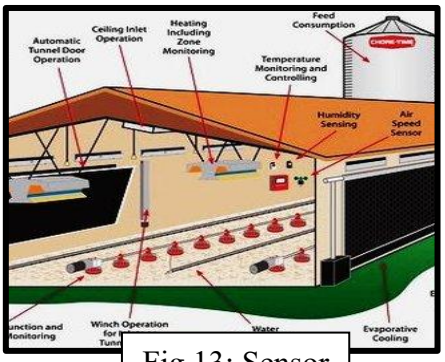

Fig 13: Sensor

Benefits of Automation in Poultry Houses

Automation in poultry farming greatly improves overall efficiency by simplifying daily operations and allowing farmers to manage larger flocks with less effort. It ensures proper feeding, watering, and environmental control, which enhances bird health, reduces stress, and leads to better growth and higher egg production. By optimizing the use of resources like feed and water, automation further increases productivity. Real-time monitoring systems also help farmers make informed, data-based decisions for better management. In addition, automation reduces the need for manual labour, thereby lowering operational costs, especially in large-scale poultry farms.

Challenges of Automation in Poultry Houses

Despite its many benefits, automation in poultry farming also faces several challenges. The high initial investment required for installing automated systems can be a major constraint for farmers, although it may be recovered over time through labour savings and improved productivity. These systems also require technical knowledge for proper operation, maintenance, and troubleshooting, which may need trained staff or expert support. Regular maintenance is essential to keep the systems running efficiently and to prevent breakdowns. In addition, integrating different automated systems can be complex, and reliance on technology means that any system failure or power disruption can affect farm operations, making backup arrangements necessary.

Official Website
www.thescienceworld.net
thescienceworldmagazine@gmail.com
Published 15/04/2026

Maintenance of Automated Poultry Systems

Proper maintenance is essential for the smooth functioning of automated poultry systems. Regular inspection and cleaning of feeding, watering, and climate control equipment help prevent blockages, leaks, and contamination while ensuring efficient performance. Preventive maintenance, such as scheduled servicing, lubrication, and timely software updates, further improves system reliability. Quick troubleshooting and keeping essential spare parts ready can reduce downtime during breakdowns. In addition, proper training of staff in system operation, maintenance, and emergency handling is important to ensure effective use of automation and avoid major disruptions.

Conclusions

Automation in poultry houses offers numerous benefits, including increased efficiency, improved animal welfare, and enhanced productivity. However, it also presents challenges such as high initial costs and the need for technical expertise. Effective maintenance practices are essential to ensure the longevity and reliability of automated systems. By embracing automation and focusing on proper maintenance, poultry farmers can achieve sustainable and profitable operations.

References

American Society of Agricultural and Biological Engineers. (2015). *Design and management of poultry housing systems*. St. Joseph, MI: ASABE.

International Poultry Council. (2021). *Global poultry production and technology trends*. Retrieved from https://www.internationalpoultrycouncil.org

World's Poultry Science Journal. (2020). Automation and precision technologies in poultry production. *World's Poultry Science Journal*, 76(2), 345–360.