

IOT BASED SURVEILLANCE SYSTEM FOR POULTRY FARMS USING SEMANTIC WEB AND DEEP LEARNING

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ABSTRACT

Poultry diseases are among the most important problems encountered in poultry farming. Although detecting diseases before they infect all poultry seems to be a fundamental challenge, it is possible to detect poultry diseases in the early stages with an Internet of Things (IoT)-based surveillance system. IoT-based surveillance systems create an important opportunity to prevent the spread of diseases throughout the poultry house and to prevent the breeders from incurring financial losses. The internet-based surveillance system proposed within the scope of this study determines the presence of poultry and poultry species with the help of artificial intelligence (AI) and aims to prevent the spread of the disease to the entire poultry house by detecting diseased poultry with the data obtained from temperature sensors. The system will detect the presence of animals and the body temperature data of poultry in two different ways. The first is to detect the presence of the animal in the nests where the laying action is carried out using a weight sensor and to obtain the body temperature data of the poultry with a temperature sensor. Secondly, by using image processing techniques, it is to detect poultry roaming in the poultry house with a deep learning model and obtains body temperature data of poultry through infrared temperature sensors. The system will decide on the possible type of disease using ontologies related to poultry diseases according to the obtained body temperatures. As a result, this proposed system will enable early disease detection for poultry farms by using the perspectives of deep learning, semantic web, and ontology engineering disciplines, which are among the important fields of study in recent years.

KEYWORDS - IoT-Based Poultry Surveillance System, Semantic Web in Poultry Farming, Ontology in Poultry Farming; Poultry Sickness Detection, Deep Learning for Poultry