

Sistem Monitoring Dan Pengendalian pH Tanah Pada Budidaya Tanaman Anggur Menggunakan Wireless Sensor Network (WSN) Berbasis IoT

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Abstract

Grapes are one of the plants that are widely cultivated in Indonesia. Optimal soil pH conditions are very important for the growth and quality of grapes. This research aims to overcome these challenges by applying the Internet of Things (IoT) concept in monitoring and controlling soil pH for grape plants. Two grape plant polybags and two soil pH sensors were used to collect data obtained from two different polybags. The proposed system utilizes a wireless sensor network (WSN) to measure soil pH and send data to the master microcontroller. The data is processed using the fuzzy logic method, and the output is used to control the pH liquid faucet ball valve. The goal is to maintain soil pH in the optimal range between pH 6.6 to 7.6. This research is expected to provide practical solutions for optimizing soil pH in grape cultivation, improving the quality of plant growth and grape harvest yields. The technology developed also has the potential for application in more efficient and sustainable grape cultivation in the wider agricultural sector

Keywords: *fuzzy logic, internet of things (IoT), soil pH sensor, grape plants, wireless sensor network (WSN)*

