ABSTRACT

In the modern era, agriculture, particularly fruit cultivation, has experienced rapid advancements with the introduction of greenhouses that facilitate plant growth in controlled environments. However, manual monitoring is no longer sufficient to maintain optimal environmental conditions, necessitating innovation in monitoring and control systems. This research aims to design and develop an automatic sensor system in greenhouses to monitor and regulate environmental parameters such as temperature, humidity, air quality, and light intensity. Greenhouses play a crucial role in protecting plants, such as melons, from extreme weather and maintaining optimal growth conditions. The developed prototype uses sensors to collect real-time data, which is then used to regulate an automatic control system. The results demonstrate that the system operates optimally in managing the greenhouse environment, enhancing plant growth and productivity. Thus, this automatic sensor technology has proven effective in optimizing plant growth environments in greenhouses, offering an innovative solution for the agricultural sector amid global climate change.

Keywords: *Greenhouse, Controlled Environment, Sensors*