I. INTRODUCTION

A greenhouse is a specially designed building that utilizes ultraviolet-permeable materials for the purpose of cultivating vegetables and fruits. The primary objective of farming within greenhouses is to enhance plant productivity. However, agricultural practices in greenhouses differ significantly from those employed in open land due to variations in light intensity, temperature, and humidity control.

The growth of plants in greenhouses is influenced by factors such as air temperature and humidity, which in turn are affected by light intensity. Excessive sunlight exposure can elevate temperatures and decrease humidity levels, leading to potential harm to the plants. Consequently, it becomes crucial to regulate the intensity of light, as well as monitor and manipulate temperature and humidity levels within the greenhouse environment. This can be achieved through the implementation of an integrated control system, coupled with a computerized monitoring system that enables real-time adjustments.

Numerous research studies have been conducted to explore the dynamics of greenhouses, including investigations carried out by Wahono and Yohana in 2014. Their experiments focused on temperature and humidity control within greenhouses using a humidification system, employing the DHT sensor to detect temperature and humidity. Similarly, Hariadi conducted research in 2007, developing a control system for managing temperature, humidity, and light in greenhouses. In this study, the RTC DS1307 sensor was employed to measure light intensity, while the LM35 sensor was used to monitor room temperature.

The morphological properties of plants are intricately linked to light intensity, as it is necessary for the process of photosynthesis, where CO2 and water combine to form carbohydrates. Light intensity, measured in Candela (Cd), represents the amount of light emitted by a source in a specific direction per unit angle. Understanding the concept of light intensity is crucial, as it determines the quantity of light received at a particular location from a light source.

This paper focuses on the author's research, which centers on the functioning of artificial neural networks in predicting humidity, temperature, and light conditions within a one-minute timeframe. The primary goals of the research are to accurately analyze the aforementioned environmental factors and to assess the measuring accuracy of the developed artificial neural network. The contributions of this paper lie in conducting precise studies on humidity, temperature, and light conditions within the next minute, as well as evaluating the accuracy of the artificial neural network that was developed.