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Design an automated computerized cooling system for controlling and recording the temperature in the tropical protected houses

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Increasing the internal temperature in tropical protected houses is a major problem for better crop growth and development. Eventhough, some remedies are in practice to control the temperature in protected houses, they are not very effective and efficient. The present research was carried out to designing, develop and performance testing of an automated, computer operated cooling system with the ability of storing and displaying temperature data in the report form in the protected house. This system was designed to operate electronically and easy to install. An electronic sensor (LM 35) is used to measure the internal temperature of the protected house. This data is transferred to the computer via COM port by converting it to digital signal. Data conversion and port communication was done using an electronic circuit with a microcontroller. User is given ability to run this system either by manually or automatically. If the user select automatic mode, the software compares the internal temperature value with the user defined temperature value. When the internal temperature increases above the defined value, the mist system automatically starts and works until internal temperature drops below the defined value. When the system is operating manually, there are "on" or "off" buttons in the system to operate as the user wishes. To check the accuracy of the sensor used in the system, a test was conducted under the laboratory condition of the Department of Agricultural Engineering, Faculty of Agriculture, Mapalana. According to the T-test, there was no significant difference between the data obtained by manually and by the sensor at 5% level. Under protected house condition the internal temperature of the protected house was dropped down by 2-3 C⁰ per minute with the system. Further studies is needed to control other climatological parameters such as relative humidity, light intensity etc. in protected house

Keywords: protected house, temperature control, data recording, computerized cooling system.