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INVESTIGATION OF TEMPERATURE VARIATIONS UNDER HOUSE ROOFS OF DIFFERENT COLOURS BY COMPUTER INTERFACING

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SELVADURAI LOHEESWARAN

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Abstract

In the view of experiments, interfacing is the communication between an experimental setup and a microcomputer. In this work temperature measurements were carried out using personal computer. To measure a physical quantity by using a computer, a sensor, signal conditioning, and data acquisition are required. In our experiment K-type thermocouple is used as a sensor, thermocouple input device (TC-08) is used as a signal conditioning and Pico Technology is used as a data acquisition.

The colour of the roof of a house is one factor in to reduce or increase the temperature inside the house. In this project two houses one control and other experimental house were constructed and four colour paints were applied to the roof of the experimental house. The experimental house was interfaced with a personal computer to measure the temperature inside the house. In these experiments the interfacing system contained a K-type thermocouple, uninterrupted power supply and a thermocouple input device TC-08 as analog to digital converter.

In this project the temperature inside the houses were measured as voltage of the thermocouple and this voltage of the thermocouple was recorded as temperature by the computer through AD converter TC-08. The experimental results were presented in the form of graph using a Pico data logging software.

According to our experiments

The white colour painted roof reduced atmospheric temperature by the amount of 6 $^{\circ}$ C and blue colour painted roof reduced atmospheric temperature by the amount of 4 $^{\circ}$ C further green colour painted roof reduced atmospheric temperature by the amount of 5 $^{\circ}$ C and aluminum colour painted roof increased atmospheric temperature by the amount of 12 $^{\circ}$ C.

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