DESIGN OF A HUMIDITY CONTROL SYSTEM FOR A DSLR CAMERA STORAGE BOX USING ARDUINO-BASED FUZZY LOGIC

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ABSTRACT

Humidity is a condition where the water content in the air exceeds the required content of the storage media, so it is necessary to regulate the storage media. Humidity is an important factor in storage media. Moisture control on storage media is needed to maintain the quality of the goods inside. Optimal humidity requirements for DSLR camera storage range from 35-65%. In conditions of humidity less than 35%, the storage experiences dry conditions which results in the fragility of each equipment inside. Meanwhile, if it has a humidity value above 65%, it makes the conditions in the DSLR camera storage box damp, in these conditions it can lead to increased fungal growth, it is necessary to have a system that can regulate the humidity requirements in the DSLR camera storage box. Based on this, we need a storage box that can regulate humidity automatically. In this study, an automatic humidity controller will be made using the fuzzy logic method embedded in Arduino Uno, Arduino will act as a processor, use a DHT22 sensor as a humidity detector, peltier and DC fans are used as outputs. Peltier is used to increase the humidity in the storage box, and while the DC fan functions to increase the effectiveness of the peltier in the DSLR camera storage box, each activity of the peltier and DC fan is based on predetermined fuzzy logic. The process carried out will be displayed via a 16x2 LCD. Based on the results of accuracy and precision testing on humidity sensor readings of 97.9% and 98.9%. In the comparative test of the humidity control system against Matlab, it has an error of 0.32%, so the accuracy rate of the humidity control system for Matlab is 99.68%. Then in testing the humidity control system as a whole it has a percentage value of 93.33%. From the results of each test, it has an average value of 90% and above, it can be said that the performance of the tool is good.

Keywords : *Fuzzy Logic, Arduino UNO, DHT22 sensor, DC fan, Humidity.*