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Designing of Iot Based Plant Growth Monitoring and Nurturing System

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ABSTRACT

IoT based indoor plant growth monitoring and nurturing system is designed. The data related to the plant growth status is collected by using Camera and Ultrasonic sensor. The soil moisture sensor and a water pump is connected to the IoT devices which automatically keeps the soil wet as per the plant needs. The DHT11 sensor is employed to read the surrounding temperature and moisture level. An ultrasonic transducer and a fan is used to produce water mist for cooling and maintaining the moisture level suitable for the plant growth. A strip of LEDs having blue and red colours are placed above he plats so that the plats can be exposed to the light as per the requirement of the plant. The nutrition required for better health and plant growth is mixed in the water tank in the ratio suggested. The entire system is connected to Gateway using ESP8266 NodeMCU. The data from the sensor is sent to the Thingspeak server for the further study of plat growth using MQTT protocol. The status of the plat growth is easily monitored remotely and the inputs to the plants are controlled remotely such as watering to plant, exposure to light, amount of nutrition and maintaining the surrounding temperature and moisture level. The data sent to the Thingspeak

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Eco-friendly Vegan Candles: Harnessing Coconut and Soy Wax for Sustainable Impact

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ABSTRACT

The commercial candles manufactured from paraffin wax are proven to be hazardous to humans as well as to the environment since they produce highly toxic chemicals when burned. Paraffin wax is a non-renewable petroleum derived product. The extraction and processing of paraffin wax contributes to environmental pollution, greenhouse gas emissions, contrary to that soy and coconut wax are made from renewable resources and are more eco-friendly. A comparative study was done using soy-coconut candle and paraffin wax candle. The soy-coconut wax candles were made in the ratio 4:1(soy: coconut). For both the candles, equal quantities of soy-coconut wax and paraffin wax was poured into candle moulds. After burning both the candles simultaneously for one hour, obtained soot quantity from the burned paraffin wax candle was found to be 3.82 % and no soot was obtained from soy-coconut wax candle. Compared to paraffin wax candle, soy-coconut wax candle burned at a significantly slower rate and this was proved by calculating pre and post burning weights. Post burning, weight of paraffin candle decreased by about 25.43%, while weight of soy-coconut wax candle decreased by 4.34%. The flame colour of paraffin candle was predominantly yellow, while that of soy-coconut candle was a mix of blue and yellow colour. The paraffin candle produced a flame height of 2 cm and the soy-coconut candle had a flame height of 0.5 cm. The study and results revealed how soy and coconut wax offer more sustainable options as they produce less soot, burns for a longer time and are more environmentally friendly because they originate from renewable sources. Even though soy and coconut wax candles may cost more than paraffin candles, ethical shoppers may find that the advantages they provide in terms of health, environment, and morality often outweigh the extra expense.

Keywords: Soy wax, coconut wax, paraffin wax, sustainable, ecofriendly, vegan