

ABSTRAK

SISTEM MONITORING KEMATANGAN TEMPE GORENG BERDASARKAN CITRA RGB

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Telah dilakukan penelitian Sistem Monitoring Kematangan Tempe Goreng Berdasarkan Citra RGB dengan metode pengolahan citra RGB. Tujuan penelitian adalah membuat sistem monitoring kematangan tempe goreng berdasarkan citra RGB. Alat dan bahan yang digunakan dalam penelitian ini adalah, solder, kabel, Desain Autodesk 123D, Visual Studio Code, Arduino IDE, Arduino Uno, Motor stepper nema 17HS3401, Power supply 12 V/10 A, Module driver TB6560, termokopel tipe k max 6675, Webcam, Papan PCB, Besi polos, kipas DC 12 V, Switch power MCB 10 A, kayu, dan tempe. Hasil penelitian dibagi menjadi dua, yaitu pengamatan nilai RGB dengan cahaya dan pengamatan nilai RGB tanpa cahaya. Proses pengambilan data nilai RGB pada tempe goreng tanpa cahaya dilakukan pada rentang suhu 195,00°C sampai 228,75°C. Data nilai RGB, Blue cenderung lebih tinggi dibandingkan nilai Red dan Green yang berdekatan. Proses pengambilan data nilai RGB pada tempe goreng pakai cahaya dilakukan pada rentang suhu 195,25°C sampai 225,75°C. Data nilai Red, Green dan Blue memiliki perbedaan nilai yang cukup besar dilihat dari data ketiganya tidak saling berdekatan. Hasil dari pengambilan data nilai RGB ini menunjukkan penurunan nilai yang cukup stabil. Berdasarkan kedua analisis data nilai RGB kematangan tempe goreng tersebut, dapat diketahui bahwa nilai Red, Green, dan Blue kematangan tempe yang digoreng cenderung turun mengikuti lama waktu penggorengan.

Kata kunci: RGB, Tempe, Arduino Uno.

ABSTRACT

MATURITY MONITORING SYSTEM FRIED TEMPE BASED ON RGB IMAGE

By

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Research has been carried out on The Monitoring System Of Fried Tempe Maturity Based On RGB Images using the RGB image processing method. Purpose of this research is to create a monitoring system for the maturity of fried tempeh based on RGB imagery. The tools and materials used in this study were, solder, cable, Autodesk 123D Design, Visual Studio Code, Arduino IDE, Arduino Uno, Nema 17HS3401 stepper motor, 12 V power supply /10 A, Driver module TB6560, thermocouple type k max 6675, webcam, PCB board, plain iron, 12 V DC fan, 10 A MCB power switch, wood, and tempeh. Results of this study are divided into two, namely the observation of RGB values with light and observations of RGB values without light. The RGB value data collection process for fried tempeh without light was carried out at a temperature range of 195.00°C to 228.75°C. RGB value data, Blue tends to be higher than other. The process of taking RGB value data on fried tempe using light is carried out at a temperature range of 195.25 °C to 225.75 °C. The data values for Red, Green and Blue have quite a large difference in value as seen from the data that the three data are not close to each other. The results of this RGB value data collection show a fairly stable decrease in value. Based on the two analyzes of the RGB value data for the maturity of the fried tempeh, it can be seen that the Red, Green, and Blue values of the fried tempeh tend to decrease following the length of time of frying.

Keywords: *RGB, Tempe, Arduino Uno.*