

INTISARI

SISTEM PEREDUKSI KADAR KARBON MONOKSIDA DARI ASAP ROKOK PADA RUANGAN TERTUTUP DENGAN METODE IONISASI

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Kondisi udara disebuah ruangan perokok biasanya melebihi ambang batas untuk pernapasan dan hanya menggunakan *blower* saja untuk mengganti udara di ruangan tersebut. Sistem ini mampu mendeteksi kualitas udara diruangan tersebut dengan menggunakan sensor MQ-7 dan membersihkannya menggunakan plasma yang dihasilkan dari *flyback transformer*, alat ini mampu mereduksi kadar Karbon Monoksida (CO) sebanyak 5 ppm dalam ruangan tertutup.

Sistem dirancang dengan menggunakan sensor MQ-7, LCD 20x4, *Light Emitting Diode* (LED) *bar graph*, *flyback transformer* serta Arduino Nano sebagai pemrosesnya. Sensor gas MQ-7 akan mendeteksi kadar gas CO pada ruangan *prototype smoking room*, LCD 20x4 akan menampilkan *text notifier* dan nilai CO dalam ppm, LED *bar graph* akan menampilkan level pembacaan kadar gas CO, dan *flyback transformer* akan mereduksi kadar gas CO dengan cara ionisasi.

Hasil pengujian yang telah dilakukan mengindikasikan bahwa sistem mampu mengurangi kadar gas CO sebanyak 5 ppm selama 10 menit dengan frekuensi yang dihasilkan oleh IC 555 dengan nilai 15.89 kHz. *Flyback transformer* akan bekerja jika kadar gas CO melebihi 20 ppm. Sensor gas MQ-7 mampu membaca konsentrasi gas CO 100 ppm dengan nilai Rs 18.871 kOhm.

Kata Kunci : Arduino Nano, Flyback Transformer, IC 555, MQ-7, Karbon Monoksida.

ABSTRACT

SYSTEM FOR REDUCING CARBON MONOXIDE LEVELS OF CIGARETTE SMOKE IN A CLOSED ROOM WITH THE IONIZATION METHOD

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Air condition in room smokers usually exceeds the threshold for breathing and just use a blower just for replacing the air in the room. The system is able to detect the air quality in the room by using the sensor MQ-7 and clean it using a plasma is generated from the flyback transformer, the tool is able to reduce the levels of carbon monoxide (CO) as much as 5 ppm in a closed room.

The system is designed by using sensor MQ-7 20x4, LCD, Light Emitting Diode (LED) bar graph, the flyback transformer as well as the Arduino Nano as processor. Gas sensor MQ-7 will detect gas levels of CO in indoor smoking room prototype, the LCD 20x4 will display the text notifier and value CO in ppm, the LED bar graph displays the level of the reading levels of the gas CO, and flyback transformer will reduce the levels of CO gas by ionisation.

The results of the testing has done indicates by the system that able to reduce the levels of CO gas by as much as 5 ppm for 10 minutes with the frequency generated by the IC 555 value of 15.89 kHz. Flyback transformer will work if the level exceeds 20 ppm CO gas. Gas sensor MQ-7 are capable of reading 100 ppm CO gas concentration with a value of Rs 18,871 kOhm.

Keywords: Arduino Nano, Flyback Transformer, IC 555, MQ-7, Carbon Monoxide.