

## INTISARI

Tugas akhir ini membahas tentang sistem pengaman jarak jauh berbasis infra merah dengan isyarat gelombang radio. Alat ini terdiri atas lima bagian utama yaitu pengendali sistem (pemancar infra merah dan rangkaian saklar), detektor infra merah (pemancar dan penerima), pewaktu penyalaan isyarat, pemancar radio dengan isyarat alarm dan penerima isyarat (radio FM).

Pemancar infra merah akan memancarkan gelombang yang dirancang dengan IC 555 dengan frekuensi keluaran sekitar 37,9 kHz. Penerima infra merah menggunakan Modul PIC-12043S yang merupakan IC detektor infra merah yang mampu menerima sinyal dengan jarak maksimal 10 meter. Pewaktu menggunakan IC 555 yang dirancang untuk mengatur, berapa lama waktu alarm dan sistem pemancar radio aktif.

Pemancar dan penerima infra merah yang digunakan sebanyak 2 pasang, 1 pasang sebagai *on-off* rangkaian pengendali sistem dan 1 pasang lagi sebagai deteksi infra merah sistem pengaman yang jika gelombang infra merah terputus maka bagian pewaktu akan mengaktifkan alarm dan pemancar radio dan secara bersamaan pula radio penerima akan menerima bunyi alarm.

## ABSTRACT

This last assignment discussed about the long distant-red infra based security system by FM radio signal. This tool consisted of five main parts, namely the system control (red infra transmitter and electric switch circuit), red infra detector (transmitter and receiver), switch on signal timer, radio transmitter by alarm and receiver signal (FM radio).

The red infra transmitter would transmit the wave designed with IC 555 by output frequency around 37,9 kHz. The red infra receiver used the modulation of PIC-12043S was the red infra IC detector which was able to receive the 10 meters distant-maximized signal. The timer used IC 555 designed to arrange, how long the alarm and radio transmitter system was active.

The red infra transmitter and receiver used as many as 2 sets, 1 set was as the on-off circuit control system and the other set was as the detection of red infra security system in which if the red infra wave was off, so the timer section would activate the alarm and radio transmitter and simultaneously the radio transmitter would be also received the alarm sound.