INTISARI

Antena merupakan alat yang digunakan untuk memancarkan dan menerima radiasi sinyal. Terdapat beberapa jenis antena yang sering digunakan, antara lain antena terarah dan antena segala arah yang mempunyai keunggulan tersendiri. Antena pengarah yang mempunyai radiasi terarah lebih baik jika dikendalikan dengan kendali otomatis. Penerima yang digunakan adalah penerima sinyal radio FM. Antena yang digunakan dalam rangkaian penerima ini berupa antena *dipole* yang memiliki fokus sebagai penangkap sinyal siaran radio yang ada.

Sistem antena penerima otomatis akan mendeteksi dan merekam sinyal dan sudut sepanjang 360 derajat kemudian kembali pada sudut saat terdeteksi sinyal terbesar. Hasil besarnya sinyal dan sudut ditampilkan dengan bilangan biner oleh nyala LED yang dipasang secara berurutan. Radiasi sinyal yang diterima dikonversikan ke tegangan oleh FSM, kemudian di konversi lagi menjadi 8 bit biner oleh ADC 0804 sebagai masukan mikrokontroler. Mikrokontroler akan mengendalikan motor melalui driver motor L293D ke arah dimana antena harus diposisikan.

Hasil dari perancangan ini adalah antena dapat mendeteksi keberadaan sinyal terbesar dengan ketelitian sudut 0.12 derajat dengan kesalahan data ADC 1.8%.

ABSTRACT

Antenna was a tool used to transmit and receive the signal radiation. There are several kinds of antenna which are usually used, there are directional antenna and omnidirectional antenna which have special quality. Directional antenna which has directed radiation is better if it is directed by automatic control. The receiver tool which is used is the FM Radio signal receiver. Antenna that is used in this receiver combination is dipole antenna which has focus as signal arrester of on air radio broadcast.

The system of automatic receiver antenna will detect and record the signal and the angle direction as long as 360 degree then revert to the direction when the biggest signal is detected. The result of the bigness of signal and direction are showed with binary number by the LED flame set chronologically. Signal radiation that is received is converted to the tension by FSM, then it is converted to become 8 binary bit by ADC 0804 as microcontroller input. Microcontroller will direct the motor trough the motor driver L293D to the direction where the antenna should be positioned.

The result of this design is that antenna is able to detect the existence of the biggest signal by the accuracy of 0.12 degree direction with the data error ADC 1.8%.