

ABSTRACT

Nowadays, technology has been increasing rapidly, especially in robotics technology that has entered the various facets of human life. One of the developments in the field of arts is a robot that can dance just like a human. With reference to these developments, then came the idea to implement movement controller of the mobile robot using tone decoder to detect the tone frequency composition.

This control system uses microphone, audio signal amplifier with Automatic Gain Control, four tone decoders, ATmega16, LCD 2x16, motor driver, and two DC motors. The main point of this control system is to detect the desired tone frequency composition using tone decoder and respond these conditions with movement of DC motor and the words display from LCD.

This mobile robot movement's control system uses four tone decoder for four conditions of movement (forward, backward, right, and left) with delay movement response 1,10 seconds for the distance of 60 cm and 1,25 second for the distance of 180 cm. The amplitude gain value for the pre-amp is about 126,4 with maximum output voltage 4,52 Vpp, and then stabilized by AGC at the level 1,33 Vpp.

Keyword: tone decoder, sound sensor, audio, robot, tone