

Design and Implementation of a Control System for a Walking Robot with Color Sensing and Line following Using PIC and ATMEL Microcontrollers

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Abstract : The aim of this research is to design and implement line-tracking mobile robot. The robot must follow a line drawn on the floor with different color, avoids hitting moving object like another moving robot or walking people and achieves color sensing. The control system reacts by controlling each of the motors to keep the tracking sensor over the middle of the line. Proximity sensors used to avoid hitting moving objects that may pass in front of the robot. The programs have been written using micro c instructions, then converted into PIC16F887 ATmega48/88/168 microcontrollers counterparts. Practical simulations show that the walking robot accurately achieves line following action and exactly recognizes the colors and avoids any obstacle in front of it.

Keywords : color sensing, H-bridge, line following, mobile robot, PIC microcontroller, obstacle avoidance, phototransistor

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