

THE AUTONOMOUS GOLF PLAYING MICRO ROBOT: WITH GLOBAL VISION AND FUZZY LOGIC CONTROLLER

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ABSTRACT - This paper presents design concepts in developing an Autonomous Golf Playing Micro Robot. The robot moves autonomously using 2 DC motors controlled by a remote PC using fuzzy logic system. A servomotor is used for the motion of the putter in hitting the golf ball. A microcontroller is used to process the information sent by the computer through RF communication and drive the robot motors for appropriate motions. The robot plays golf in a defined environment and avoids obstacles.

A real golf ball with orange color is use during the game. The system utilizes global camera vision that serves as the eyes of the robot to know its dynamic environment for navigation. The vision system developed detects the position of the robot, golf hole, golf boundaries, and the golf ball within the playing field on real time using color object recognition algorithm. A modified golf tournament between autonomous robot golf player and man operated robot golf player was conducted. Results shows the accuracy and robustness of the autonomous robot developed in performing its tasks.

Keywords – Edutainment Robots, Vision System, Image Processing, Golf Playing Robot, Fuzzy Logic System