DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
KAKATIYA INSTITUTE OF TECHNOLOGY AND SCIENCE, WARANGAL-15

Title of the Mini-Project :

Self-Balancing Robot

ABSTRACT

This project will undertake the construction and implementation of a two-wheeled robot that is capable of balancing itself. The structural, mechanical, and electronic components of the bot will be assembled in a manner that produces an inherently unstable platform that is highly susceptible to tipping in one axis.

The wheels of the robot are capable of independent rotation in two directions, each driven by a servo motor. Information about the angle of the device relative to the ground (i.e. tilt) will be obtained from sensors on the device. The precise type of sensor that will be used is yet to be specified. The tilt sensor may be an accelerometer, gyroscopic sensor, or IR sensor (to measure distance to the ground). Information from the sensors will be fed back to the Z8, which will process the feedback using a crude proportional, integral, derivative (PID) algorithm to generate compensating position control signals to the servo motors in order to balance the device.

REFERENCES:

[1] Nawawi, S. W., Ahmad, M. N. and Osman, J. H. S (2008) "Real-Time Control of Two-Wheeled Inverted Pendulum Mobile Robot" World Academy of Science, Engineering and Technology

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