

LIGHT/LINE AND DTMF SIGNAL FOLLOWING INTELLEAGENT ROBOT

ABSTRACT

Classical mobile robot control systems are not suitable for use in industrial environments. The high cost of such systems, both to acquire and maintain them, prohibits their adoption. This thesis proposes a new mobile robot architecture and investigates the motion control subsystem of that architecture. This motion control subsystem is based on following a marked path using visual servoing techniques to reduce computational overhead. Two pieces of information are extracted from each frame: the horizontal position of the path, relative to the centre of the image, and the gradient of the path. These pieces of information are then passed into a proportional steering system, which uses them to steer towards the path. The use of marked paths rather than a model of the environment ensures that the downtime, caused by changes to the environment, is minimised. The lack of a model of the robot should allow the control system to easily be ported to different robot hardware