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MINI PROJECT REPORT

OF

LINE FOLLOWER ROBOT

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CERTIFICATE

Certified that the mini project work entitled ***"LINE FOLLOWER ROBOT"*** *is a bonafide work carried out by*

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in partial fulfilment for the award of **BACHELOR OF ENGINEERING** in **INFORMATION SCIENCE AND ENGINEERING** of the **VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM** during the year 2022-2023 It is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report deposited in the departmental library The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering Degree.

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ABSTRACT

Line following robots are autonomous machines designed to navigate along a predefined path or track by detecting and following a distinct line, typically with a high contrast to the surrounding surface. These robots are widely employed in various industries, educational settings, and research applications due to their versatility, simplicity, and real-world relevance.

This abstract provides an overview of the design, implementation, and applications of line following robots. The robot's core functionality relies on integrating sensor technology, control algorithms, and actuators to achieve precise path tracking. The primary sensor used in line following robots is typically an infrared or optical sensor, which detects the line's position relative to the robot's position.

The implementation of a line following robot involves several key steps, including sensor calibration, control algorithm development, and motor control optimization. Commonly used control algorithms include Proportional-Integral-Derivative (PID) controllers and fuzzy logic controllers, which enable the robot to maintain stable and accurate motion along the desired path. The applications of line following robots are diverse and continually expanding. In industrial settings, these robots are utilized for material handling, automated assembly, and warehousing tasks, reducing manual labour and increasing efficiency. In educational environments, line following robots serve as valuable tools for teaching programming, robotics, and control theory concepts to students of all ages.

In conclusion, line following robots continue to be a prominent area of research and application in robotics and automation. Their ability to accurately follow predefined paths has contributed to various industries, education, and research fields, with promising potential for further growth and innovation in the future.