**Digital Logic Design – Lab**

**Line Following Robot**

**Project Proposal**

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**Batch 2024**

**Section: (A)**

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**Introduction:**

The Line-Following Robot Project introduces an innovative exploration into the realms of digital logic design, robotics, and automation. In an era marked by rapid advancements in technology, this project embodies the fusion of theoretical concepts with practical application, offering a hands-on opportunity to delve into the intricacies of modern engineering. Through this project, participants will not only gain proficiency in designing and implementing digital circuits but will also develop critical problem-solving skills and a deeper understanding of robotics algorithms

**Description:**

We are making a line following a robot which controls the connections for our circuit. At its essence, the project requires the meticulous integration of hardware and software components. Central to its operation are infrared (IR) sensors strategically positioned beneath the robot, which discern variations in light intensity to detect the presence and position of the line. The Line-Following Robot project epitomizes innovation, exploration, and discovery in the realm of robotics and automation.

**Components:**

The initial list of components is as follow:

∙ Car Chassis

∙ TT Gear Motors

∙ Coaster wheel

∙ Breadboard

∙ Switch

∙ Arduino Uno

**.** IR sensors

**.** L298N Motor driver

**.** Electrical Insulation Tape

**.** 7-12 V DC Battery

**.** Jumper Wires

**Future Work:**

First attach wire to gear motors then connect the chassis using connectors and screws. Attach L298N motor driver module on car chassis. Now we have to place the Arduino Uno on the car chassis. Attach wheels and IR sensors in front of the car. Connect left and right motors on the motor driver module. Connect Arduino Uno as per table and further work is included. This line following robots equipped with sensors and cameras can be deployed in search and rescue operations.