BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY

Department of Electrical and Electronic Engineering

Course No. : EEE 318

Course Title: Control Systems Laboratory **Section :** A1

Project Proposal

Submitted to:

Teacher Name	
Dr. Shaikh Anowarul Fattah	Department of Electrical and Electronic Engineering
Rajat Chakraborty	

Submitted by:

Student Name	Student ID	Lab Group No.	
Himaddri Roy	1606002	1	Department of Electrical and Electronic Engineering
Mir Sayeed Mohammad	1606003	1	
Ramit Dutta	1606006	2	
Shafin Bin Hamid	1606008	3	
Munshi Sanowar Raihan	1606021	7	

Line Following Robot in VREP Simulation

Summary: The objective of the project is to design a line following robot using VREP Simulation Environment. The robot will be able to follow a black line on a while surface.

Proposed Methodology:

The robot will take inputs from an infrared sensor and based on the value obtained from the sensor, the robot will adjust itself to remain on the black line. After each iteration of reading the sensor values, an error is calculated which basically represents how much the robot's current position is deviated from the black line. Then this error is corrected through a control mechanism.

For example, if there are five sensors mounted on the robot's head and the leftmost sensor gives output corresponding to black line but the other four sensors are over the white surface, that basically means the robot's head is tilted to the right with respect to the black line in the middle. So, we need to rotate the robot counter-clockwise to align its body with the black line. And of course, to achieve that, we need to increase the speed of the right sided wheel and decrease the speed of the left sided wheel. This amount of increase and decrease is done by applying a proportional and derivative control on the error obtained by sensor values.

Applicability:

The applicability of such robots are many. For example, during a global pandemic, such an automated vehicle can bring medicine and food to infected people in the hospital. We also plan to further develop this project and if possible, implement proximity sensors to detect nearby objects so it can stop and avoid them. And, finally, with this project, we aim to get familiarized with the VREP simulation environment which we can later use to make more complex robots.