

**COMSATS UNIVERSITY ISLAMABAD**

**DEPARTMENT OF COMPUTER SCIENCE**

COMSATS University Islamabad, Vehari Campus



Project Proposal

Semi-Autonomous Entity Carrier Using External Sensors

Version 1.0

***By***

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Category**:** Robotics / Hardware / AI

## Abstract

Self-navigating object carrying hardware utilizes Arduino or Raspberry pi microcomputers. It is fundamentally a robot that follows a specific path or direction and chooses its own navigation-plan interacting with the type of obstacle. The path can be a dark line on the white floor here we will use the dark line. Its applications start from fundamental homegrown uses to mechanical industry utilization, and so on. The utilization of line following mechanical vehicle is transport the materials starting with one spot then onto the next place in the hemisphere. This robot development totally relies upon the track. In our project presentation our robot will be conveying the bundles or materials starting with one spot then onto the next place utilizing the carrying trolly. The robot can do anything you set them to do in our case we will use it for carrying small objects.

**1.Introduction**

The human labour in the large-scale industries around the world is not as much productive. Our purposed hardware will provide solution to this problem as it will replace human labour and will be able to provide a rather more efficient solution. Our robot uses a microprocessor controller taking input from sensors for its acknowledgement information and feeding back to the microprocessor, which is used for guiding our vehicle. For better understanding of line following robot, prior knowledge of Raspberry PI, IR sensors and Motor driver module is necessary.

Raspberry Pi is a Linux based single board full fledge computer runs on 32-bit single-core RISC processor, GPU and 2 GB RAM. It uses an SD card for its operating system and data storage. It can control our mechanical hardware using its 33 general-purpose 32-bit registers and has 7 dedicated 32-bit registers

[Model Variant]

IR sensors is an electronic device used to detect properties of surroundings. It detects using infrared radiation. On coloured surface in our case (black) it does not reflect any light at all hence the output is 0. On the other hand, on white surface the output is 1.

Motor Driver is used to drive motors in any direction and acts as a bridge between the controller (Raspberry Pi) and the motor driver.

# 2.System Limitations/Constraints

The followings are possible limitation and constraints of the proposed system:

* The proposed system best works in controlled environment.
* It may not properly work under low lightning.
* There should be less distortion as possible as it can be for the proposed system to yield the best output.

# Tools and Technologies

The following table highlights the tools and technologies that will be used in the implementation of our proposed system.

**Table 2Tools and Technologies for Proposed Project**

# Project Stakeholders and Roles

Write down the project stakeholders and their roles.

**Table 3Project Stakeholders for Proposed Project**

|  |  |
| --- | --- |
| **Project Sponsor** | Self Sponsored |
| **Stakeholder** | Ammar Tariq  Salman Shafiq  Project Supervisor Name: Sir Dr. Ali Shahid |