Line Following Smart Car – Building Instructions

Description	Teaching K12 students soldering skills, circuits, and electronic components.
Age group	4th - 12th graders
Category	Curriculum – Building and Soldering Instructions
Difficulty Level	Medium

Introduction

Line Following Smart Car project is designed to teach basic electronic knowledge and help practice engineering soldering skills. The smart car is made of simple circuits and electronic components, such as photoelectric sensor, voltage comparator, motor driver, Infrared sensor, and a Microcontroller Unit chip.

How does it work?

The movements of the car are based on the principle of light reflectivity:

a. Both LEDs (right side and left side) turn ON and constantly emit light.
b. Then, the light reflects to both photoelectric light sensors (right side and left side).
c. When the car is on the black line, one of the light sensors will detect less reflected light.
d. Then the car turns to the direction of the sensor with less reflected light.
e. Car repeats the steps above and it moves along the line automatically.