





# Hardware Graduation project

## Path Follower Robot



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# outline

- Overview
- Why choose this project?
- Where it can be use ?
- hardware system
- software system
- Processing
- future work
- Demo

# Overview

Our project is designed to develop a robot that follows a specific path.

We use in our project microcontroller , also LDR sensor , DC motor and BLUETOOTH module .

## Why choose this project?

Technology becomes more and more advanced in all areas.

Smart phones technology and assistant robots can be devoted to help us and improve our life .

Robots are smart machines that can be programmed and used in many areas

## Where it can be use ?

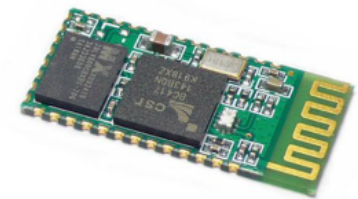
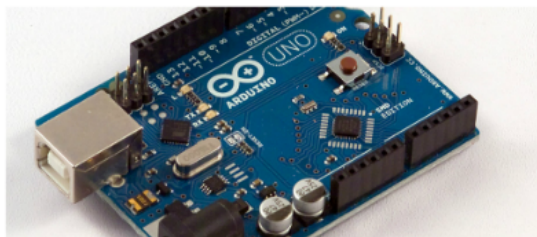
1. Industries-production lines
2. Car-industries .
3. Special Needs
- 4 Dangerous places



# Hardware system

Our system consist of three main parts

- Arduino Uno .
- LDR sensor
- Bluetooth module .



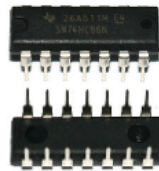


# Components of project:

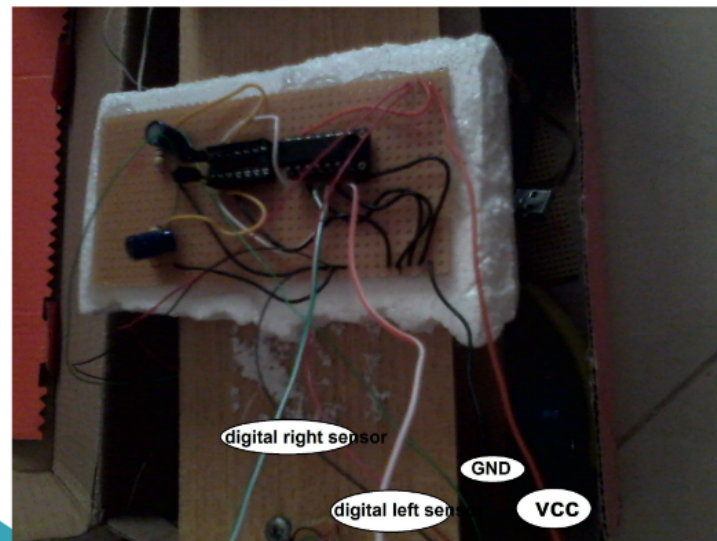
- 74HC86N IC .
- LDR sensors.
- Arduino Uno .
- H-bridge L293D.
- DC motor .
- Motor gear.
- Bluetooth Module HC-06.
- Android phone.
- Resistor 330 ohm.
- Led .
- Bread board
- White board
- Wires

## Components of project:

74HC86N IC (EXCLUSIVE-OR gate):



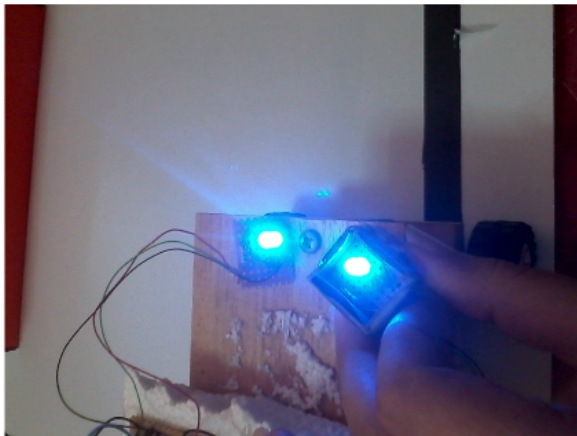
Interfacing the X-OR (74HC86N) with arduino uno:



# Components of project:

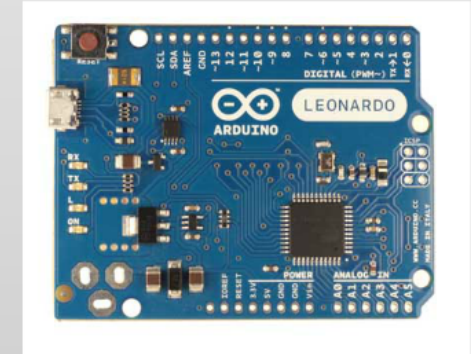
LDR sensors

Interfacing the LDR Sensor with X-OR(74HC86N):



# Components of project:

Arduino Uno :

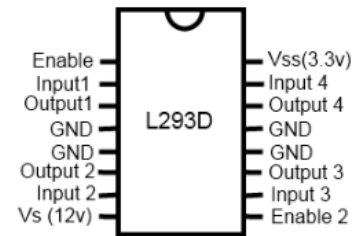


Why we use it :

- An open source design.
- An easy USB interface .
- Very convenient power management and built-in voltage regulation.
- easy debugging of code.

## Components of project:

H-bridge ( l293d):



Dc Motor :



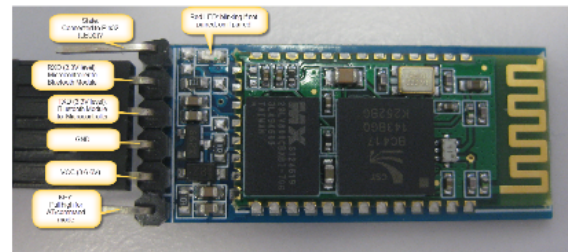
Dc Motor gearbox:



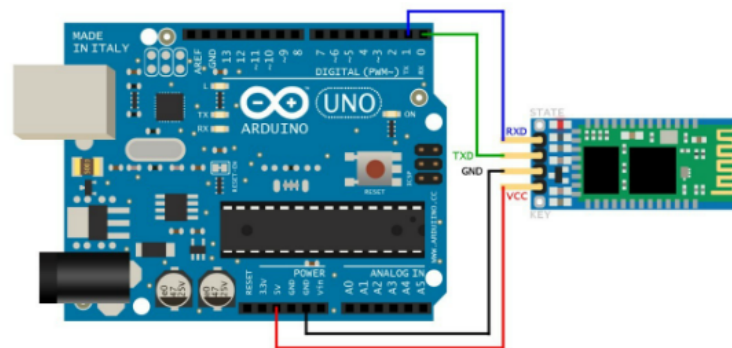
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## Components of project:

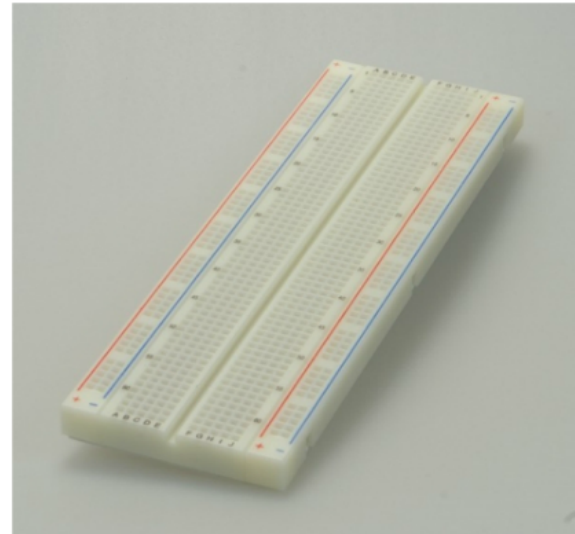
Bluetooth Module HC-06:



Interfacing the HC-06 with arduino uno:



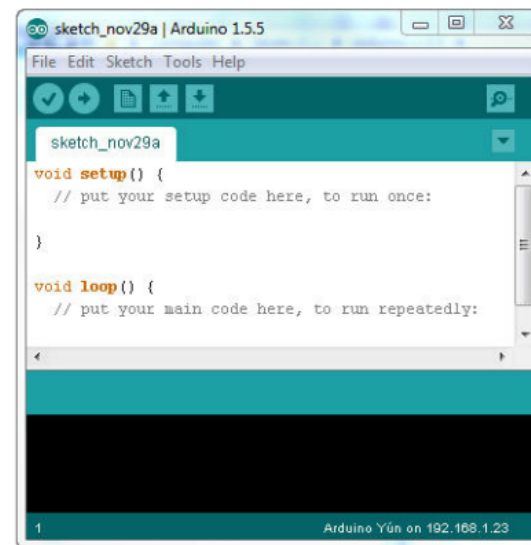
## Components of project:





## Arduino Software :

Arduino 1.5.5





# Arduino Software

The software of Arduino is open-source environment makes it easy to write code and upload it to the i/o board.

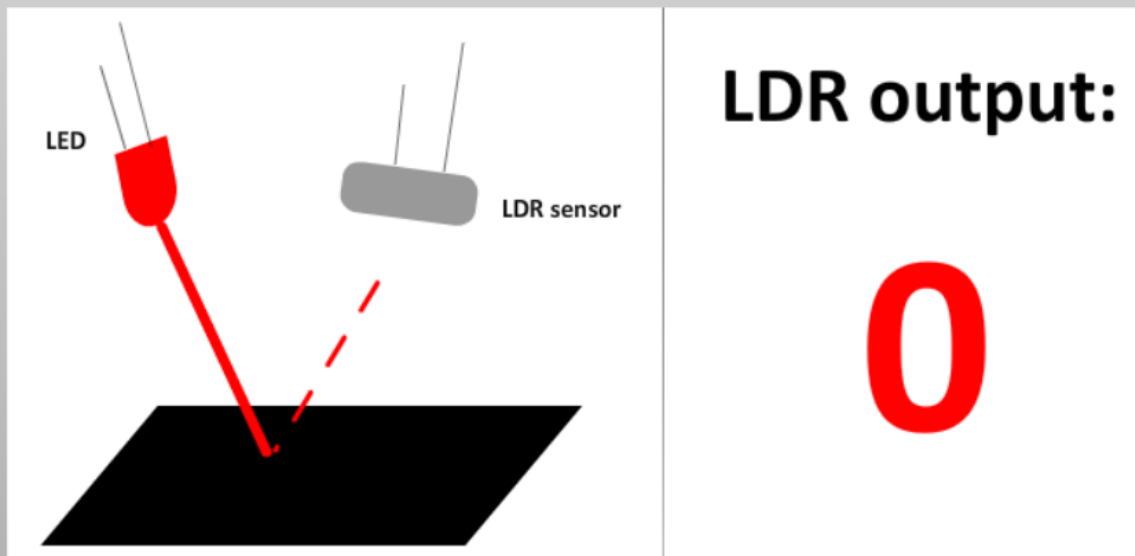
Arduino software runs on Windows, Mac OS X, and Linux.

The environment is written in Java and based on Processing .

# Arduino Software

LDR sensor:

We programmed the arduino uno using Arduino IDE , we have in our project two LDR sensor (left sensor & right sensor).



# Android Programming

This project is also based on mobile phone communication with the Arduino through Bluetooth, here we are using the Android based mobile.



# Constraints

Recourse constraint :  
there some IC we need it in our project  
but it need weeks to arrive like  
Bluetooth module .

Finance constraint :  
The Project cost around 1000 NS



# Our Future work

add color sensor