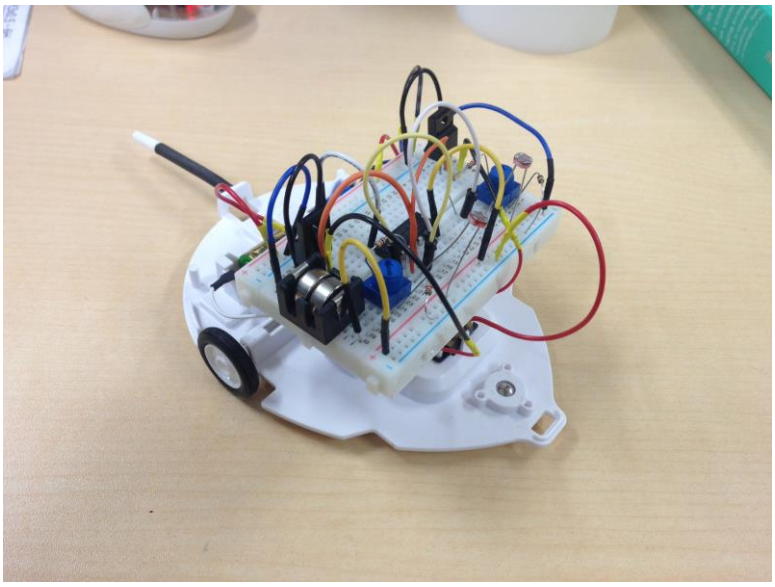
Light Following Mouse Robot (by Joshua Supratman)

Purpose of this tutorial is to create a simple robot with adjustable circuit to create different effects



Materials

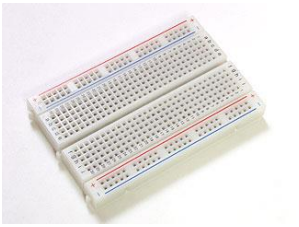
- N-ch FET K2232 x2

- Resistor 1kΩ x 4

- Variable Resistor 10 kΩx2

- Cds cell 5mm 0.5MΩx2

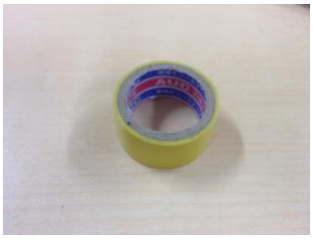
- Bread board



- Coin battery LR44 x2

- Coin battery holder MPD BH1/3N-C CR1 3N 用(LR44 2 個)電池ボックス

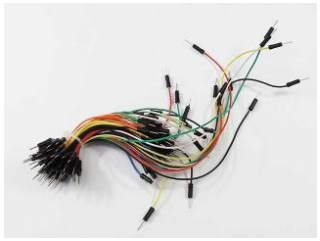
- Insulator tape



- Wire Stripper

- Nipper

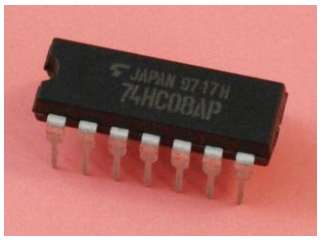
- Wires



- Tamiya's Mouse Robot

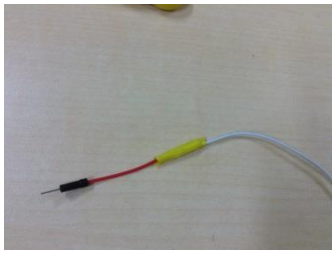
- (optional) Inverter IC

- (optional) AND logic IC

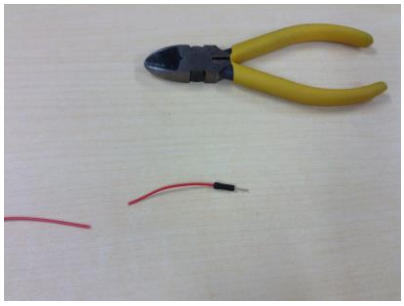


- (optional) flash light

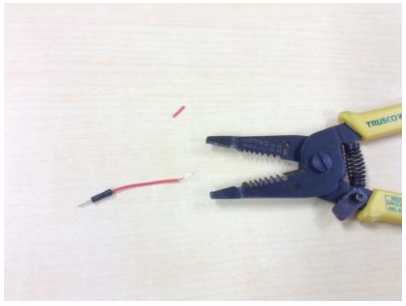
How to make jumper wire



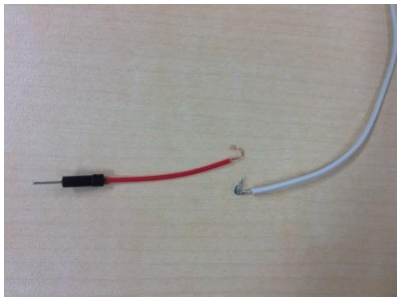
1) Use the nipper to cut the desired wire and the jumper wire



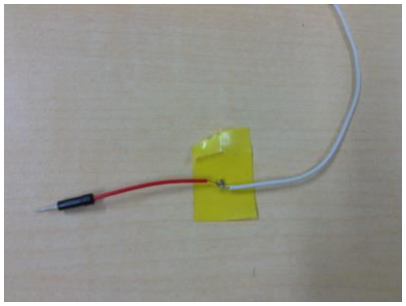
2) Use the wire stripper to strip at least 1 cm of wire



3) Make small hooks as shown below

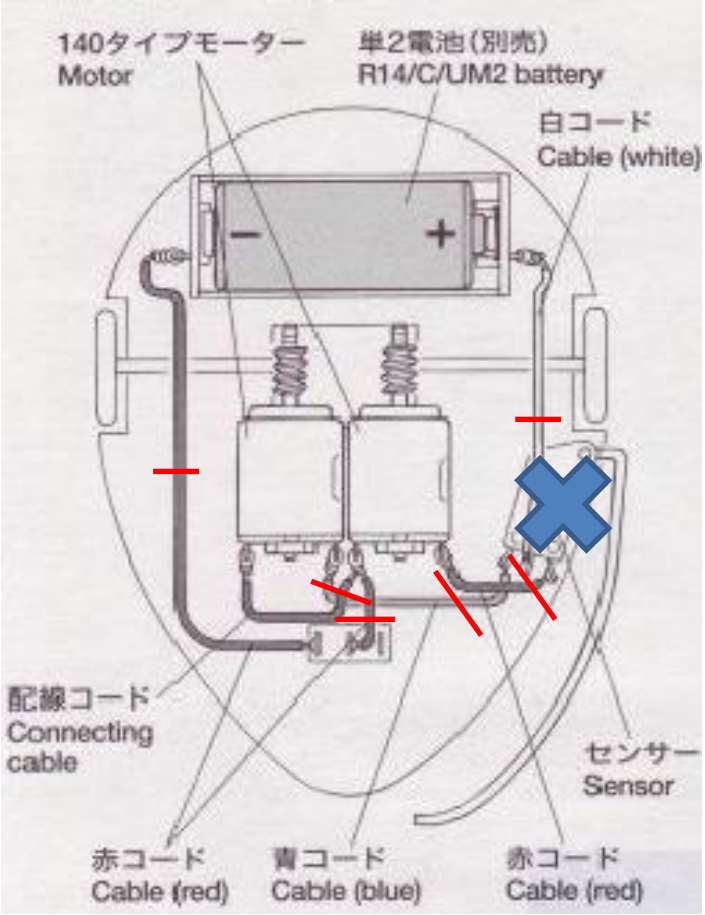


4) Bind the wires together and cover it using vinyl tape



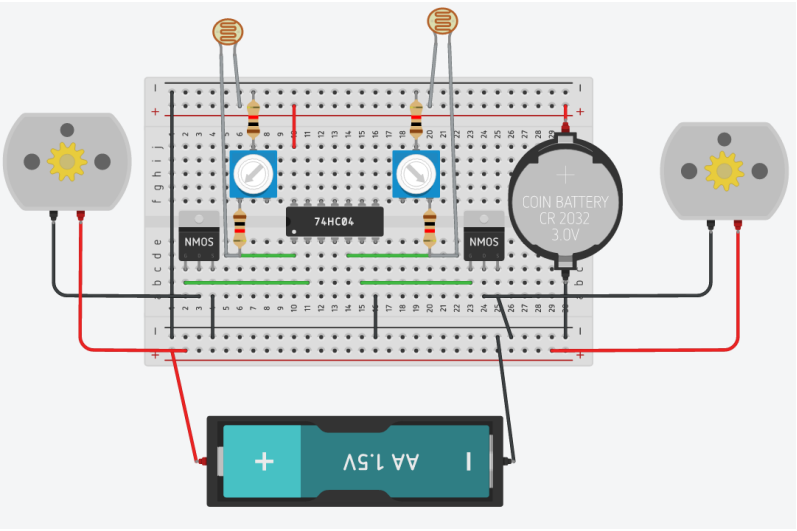
How to make

1) Follow the Tamiya's Mouse Robot instruction and make the robot
2) Remove the switch and cut the unnecessary wires



3) Make jumper wires of the motor and the battery (refer to /jumperwires)
4) Place the motor's jumper wires over the gearbox and toward the battery
5) Place the bread board on top of the gearbox
6) Design the circuit

Circuit:

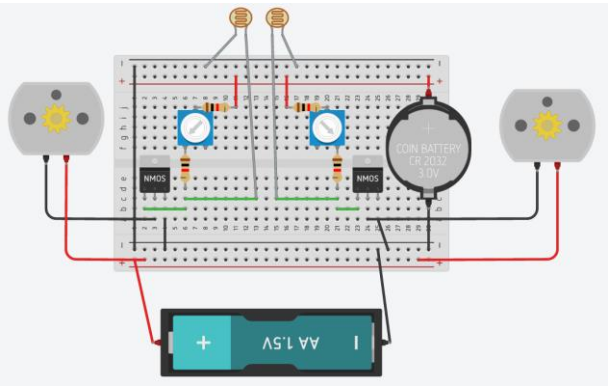


How to use

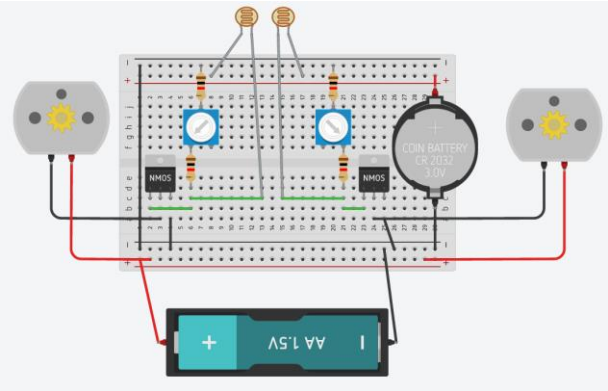
1) Rotate the variable resistor until the motor stop moving
2) Rotate the variable resistor and find the value just before the motor start moving
3) Use external light source or your hand and cover the cds cell to control the robot
4) Redesign circuit for your own use (refer to /circuit)

Circuit Variation:

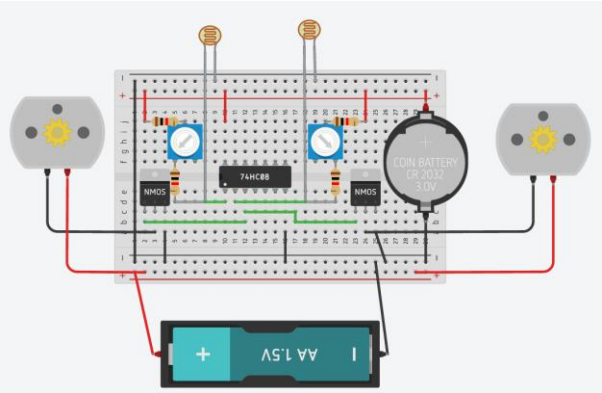
Pull Up Resistor



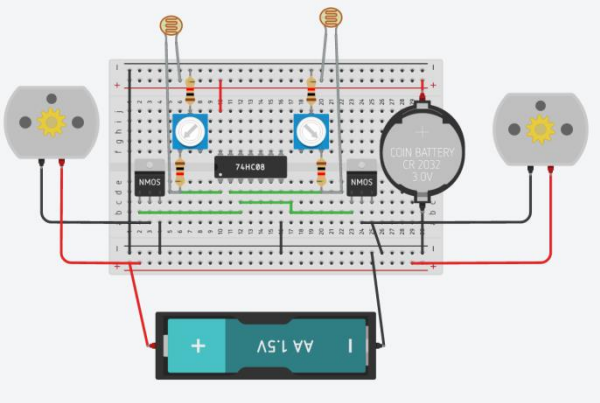
Pull Down Resistor



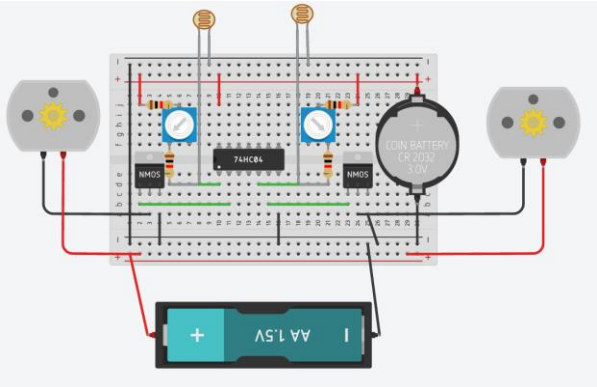
AND with Pull Up Resistor



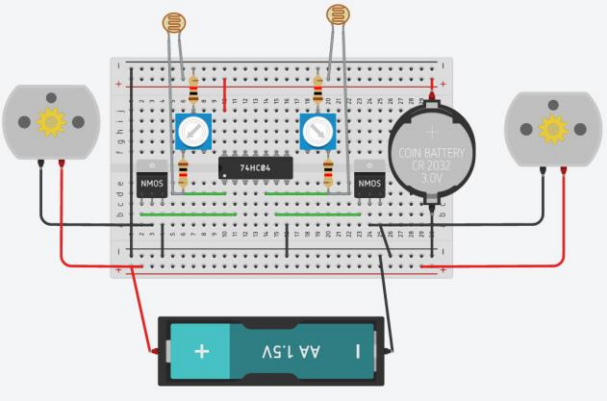
AND with Pull Down Resistor



NOT with Pull Up Resistor



NOT with Pull Down Resistor



Extra:

Different circuit can be used to create different effect. Can you make a circuit that can do one of the following?

1) Follow the light?
2) Follow the shadow?
3) Run from light?
4) Wander to find light?

5) Stop when spotted?

How will the robot move when you make the following circuit?

1) Mixture of AND and NOT logic IC
2) Using different logic IC