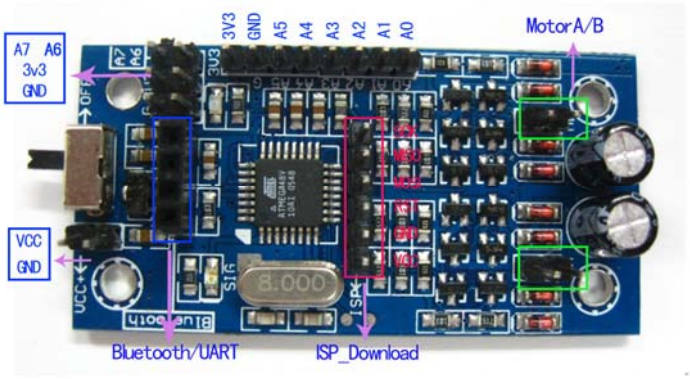
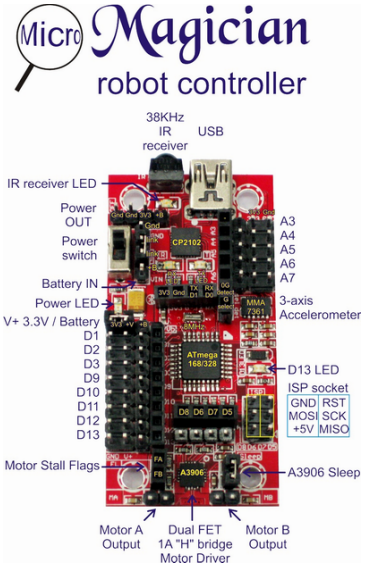
UGV BASIC CONTORLLER

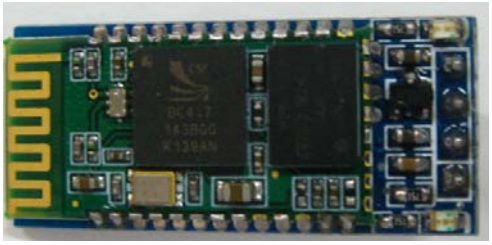
An unmanned ground vehicle (UGV) is a vehicle that operates while in contact with the ground and without an onboard human presence. UGVs can be used for many applications where it may be inconvenient, dangerous, or impossible to have a human operator present. Generally, the vehicle will have a set of sensors to observe the environment, and will either autonomously make decisions about its behavior or pass the information to a human operator at a different location who will control the vehicle through teleoperation.

The UGV is the land-based counterpart to unmanned aerial vehicles and remotely operated underwater vehicles. Unmanned robotics are being actively developed for both civilian and military use to perform a variety of dull, dirty, and dangerous activities.

There are a number of accessories available that can be added to the chassis depending on budget and skill level.
These accessories include:

Item	Photo	Description
UGV chassis		1. Ackermann steering system with feedback potentiometer. 2. Line following sensors that can ignore ambient IR. 3. Choice of 3 different gear ratios for better control

		4. Aluminum chassis with laser-cut body parts. 5. Rubber tiers for better traction 6. Wide range of accessories
Basic controller		1. A program was in the board and ISP interface for down new program.Besides,its suitable for Bluetooth module so that it can control by mobile phone with Android. 2. When it turns on, it will first to check if is connected a Bluetooth module so that it can be control by Android, else it will be following lines. 3. 3.5 to 8V operation 4. Control by Android with Bluetooth module 5. Touch screen and sensor Control 6. 2.4G Bluetooth v2.0 7. Breath LED
Micro magician		1. Small size for just 60mmx30mm 2. Supply voltage from 4.5V to 9V with 3.3V regulator and reverse polarity protection 3. ATmega 168 or ATmega 328 MCU at 8MHz 4. Dual 1A FET “H”bridge with electronic braking, current limiting and overload detect 5. 3 axis accelerometer with 0G detection and either 1.5G or 6G full range

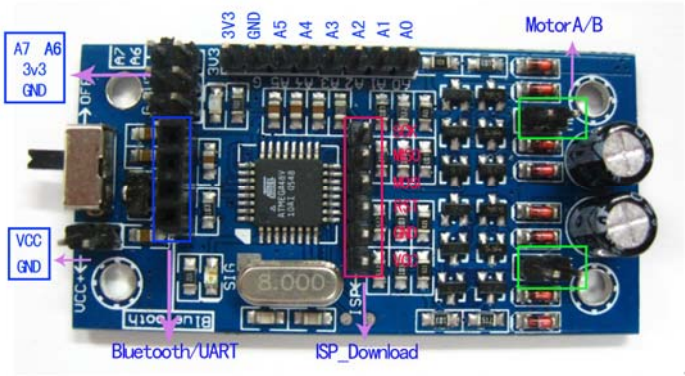
		sensitivity 6. 38KHz IR receiver with signal detection LED 7. Up to 8 servos can plug directly into the controller when V+ is set to battery 8. 3.3V and GND outputs available for powering sensors 9. All I/O pins (except D4) have both male and female header pins 10. Status LEDs for power, RX.TX,IR signal and D13
Bluetooth module		1：Voltage 3.3~6V 2：baud rate 9600（can be change A） 3 ： COM password 1234or 0000

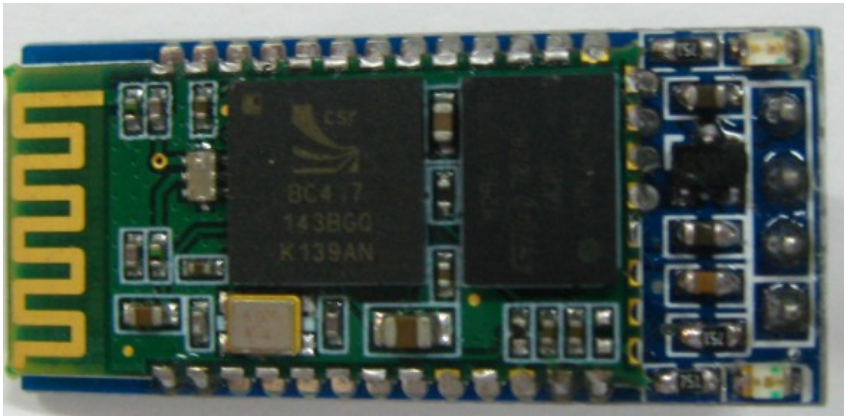
Basic controller designs for UGV chassis, with factory pre-program, and provide C source code, ISP, easy for further customize development.

This compact Bluetooth module works with both controllers allowing the car to be controlled by smart phone or computer Android app included.

Basic controller Features：

● automatically detect Bluetooth after power up, if no Bluetooth can be detected, it will go to line tracer function, if yes, it can control by smart phone.
● 3.5V~8V
● Dual 600mA H bridge motor driver
● Customer software support Android smart phone
● Support full screen touch and gravity sensing mobile phone operation
● 2.4G Bluetooth steady data transmission
● System “breath LED” indication

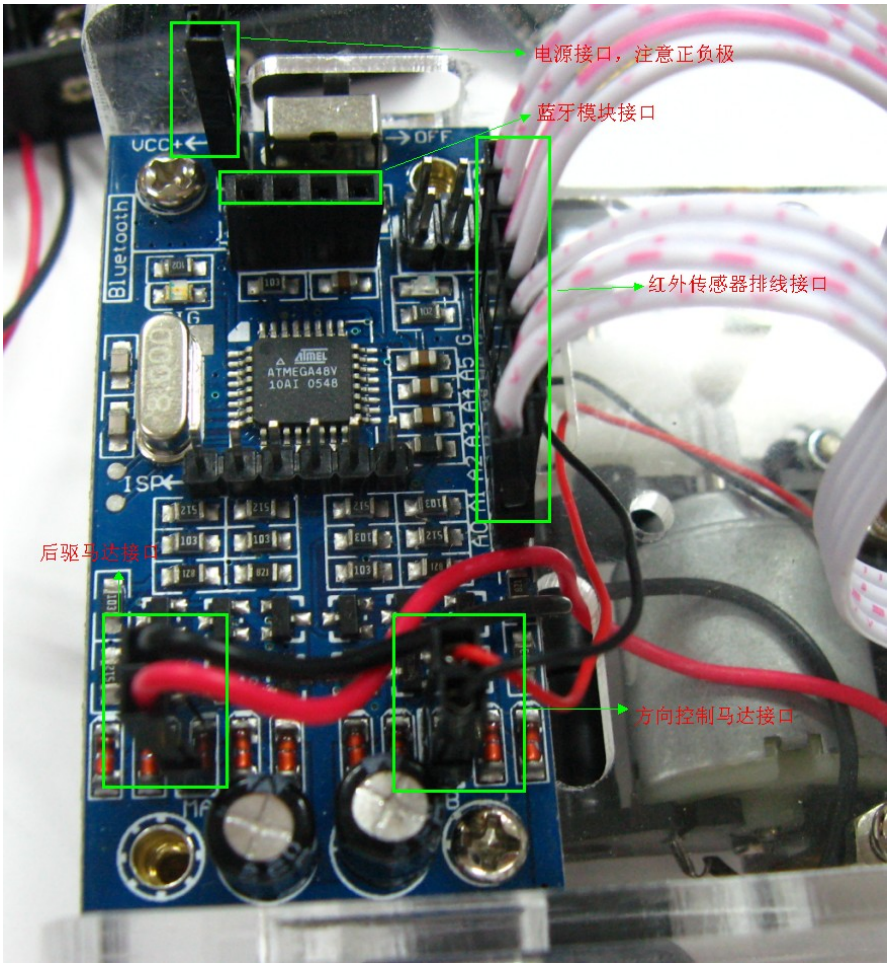




1：Voltage 3.3~6V
2：baud rate 9600（can be change A）
3：COM password 1234 or 0000

Wire connection instruction:
For UGV chassis kit assembly, please read manual carefully. When connect Basic controller, please notice following:
1. Adjustable resistance set to Middle position before connecting anything, very important!

2. Check gears turn smoothly before power up the controller; otherwise it will burn the controller.



Notice:

1. Line following PCB connects to 8 ports on the basic controller.

Operation instruction

A: Line following function (no Bluetooth)

1. It is better to run the car indoor, because there is lot of infra line in sunshine.

2. Limit to the car structure, turning angle need to smaller than the wheel maximum angle.
3. We suggest to use black line, width more than 1cm, adjust the infrared sensor, normally make it to the middle position will be the best.

Steps to run the car:

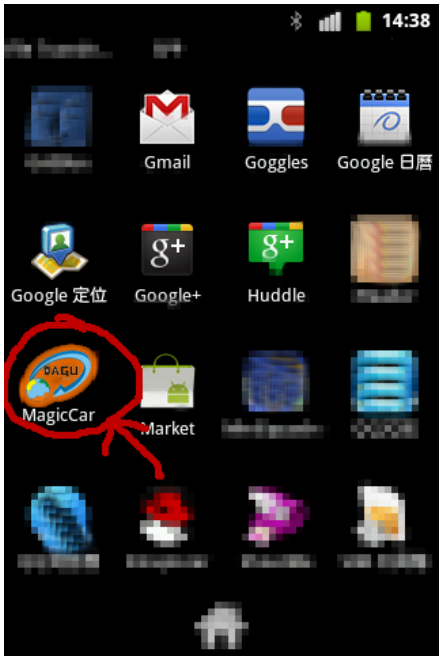
1. Check all power and signal wires are connected in good position. (power negative and positive can not plug in wrong way, may damage the controller) Place the car on the non-line following area, this step is very important, before the car run, it will detect and mark this place as a start, also as a record of trace.
2. Power on, the breath LED start to blink, (bright and dark alternatively), it indicates program is running now.
3. Place the car on the black line, car will run follow the line.

B，Smart phone mode operation

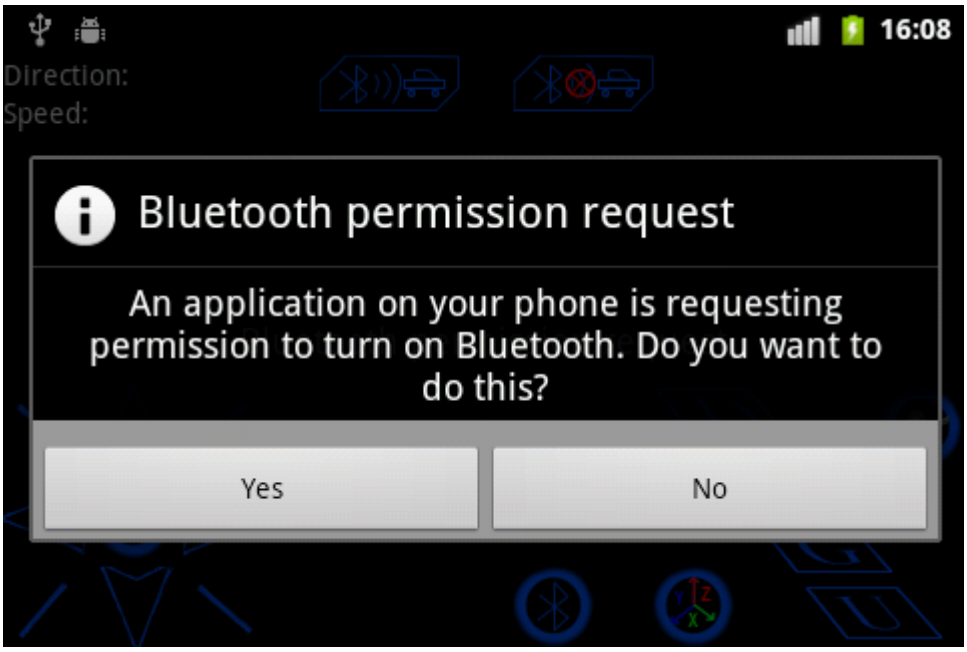
1. Plug the Bluetooth on the basic controller
2. Adjustable resistance set to Middle position before connecting anything, very important!
3. Power on, program will detect the Bluetooth module, and goes to phone mode.
4. The breath LED start to blink, (bright and dark alternatively), it indicates program is running now.
5. Open the software in the phone, connect Bluetooth, then it can operate now.

Smart phone interface operation:

Open the software:

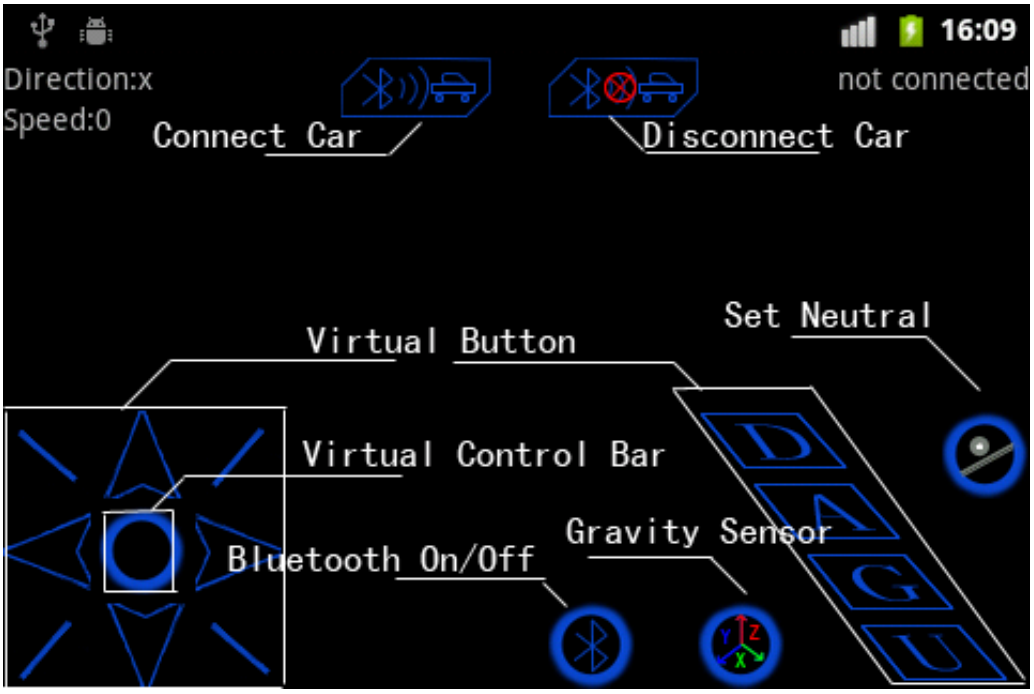


And select "Yes" enable the bluetooth:



And you will see the main activity, Control with touch screen,and virtual control bar and gravity sensor.The other part shows more details,direction speed and so on.when you turn on the sensor you should remember turn off or adjust by set neutral.

选择 "是"



控制界面

 connect it

Password“1234” or “0000”.