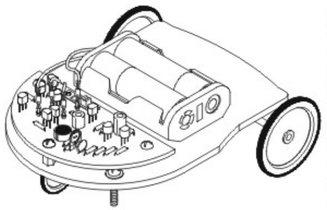
SOUND REVERSING CAR

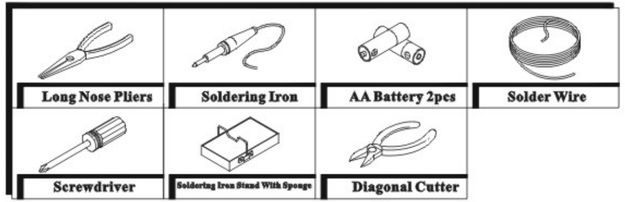
1. Product Introduction:



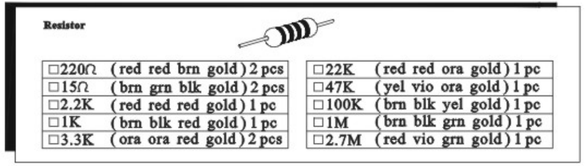
You will find it is fun to learn electronics and mechanism by building this Sound Reversing Car. It is a simple voice control robot car by using microphone as its detector. It moves forward normally unless the microphone receives signal like clap or physical contact. The car will move forward when you switch on the unit, when the microphone detects noise it will turn back and left side for few seconds then keep forward moving again until the next signal are received by microphone.

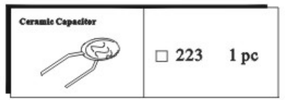
Power source required:
Voltage / Electronical / Mechanical parts: DC3V 1.5V "AA"X2 batteries (not included)

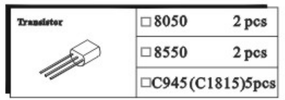
2. Tools You May Need:

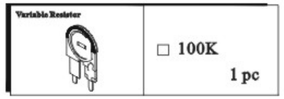


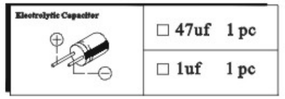
3. Electronic Parts List:

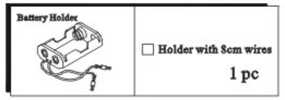


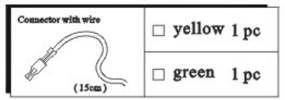


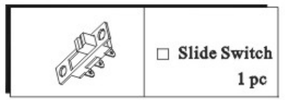


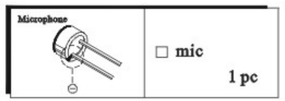


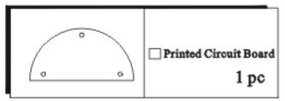




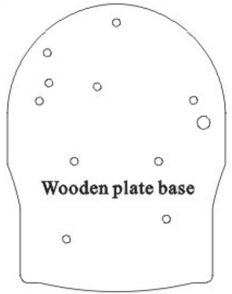


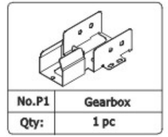


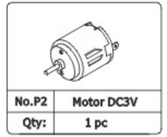


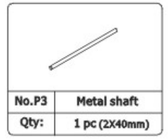


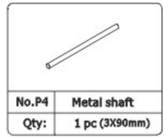
4. Mechanical Parts List:

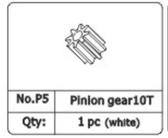


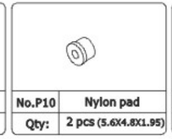


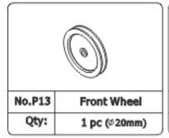


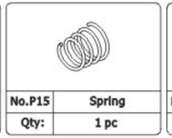


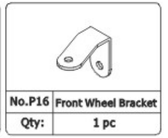


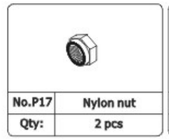


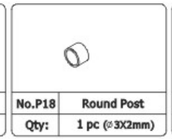


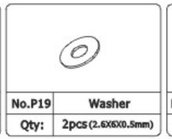


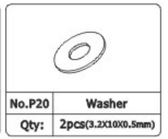


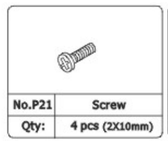


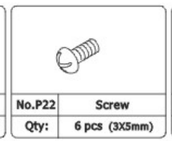


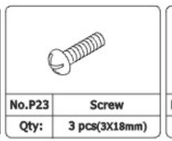


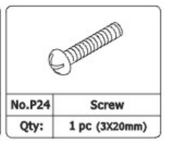


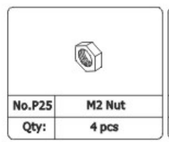


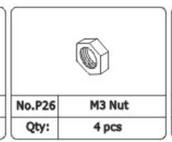












5. PCB Assembly:

The parts I.D.(identification) for each component have been printed on the PCB.

step 1: Suggest you start from the low-key components first such as the resistors.

Part I.D.	Description	Color Code	Qty
R10/11	15Ω	(brn grn blk gold)	2
R8/9	220Ω	(red red brn gold)	2
R1	1K	(brn blk red gold)	1
R2	2.2K	(red red red gold)	1
R5/12	3.3K	(ora ora red gold)	2
R6	22K	(red red ora gold)	1
R4	47K	(yel vio ora gold)	1
R13	100K	(brn blk yel gold)	1
R7	1M	(brn blk grn gold)	1
R3	2.7M	(red vio grn gold)	1

step 2: Mount Capacitors, Transistor, VR, Mic, Slide Switch,Pins.

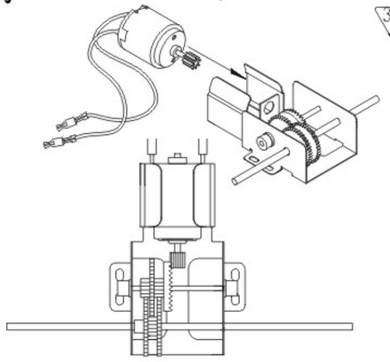
Part I.D.	Description	Qty
C1	223 ceramic capacitor	1
C2	47uf electrolytic capacitor	1
C3	1uf electrolytic capacitor	1
TR4/8	transistor 8050	2
TR3/7	transistor 8550	2
TR1/2/5/6/9	transistor C945 or (1815)	5
VR	VR 100K	1
MIC	Microphone	1
SW	Slide Switch	1
M+	∅1.3mm Pin	4
M−		
+		
−		

6. Mechanical Assembly:

Gear box Assembly

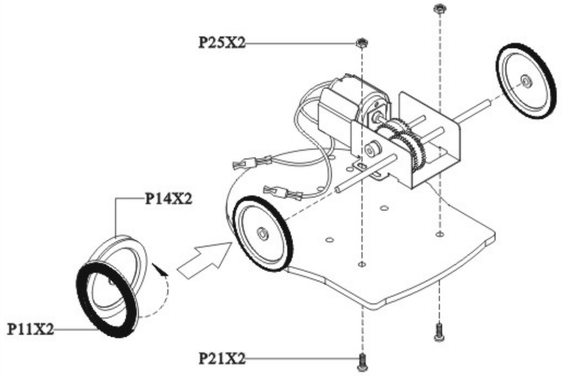
to be continued

1 Gear box Assembly

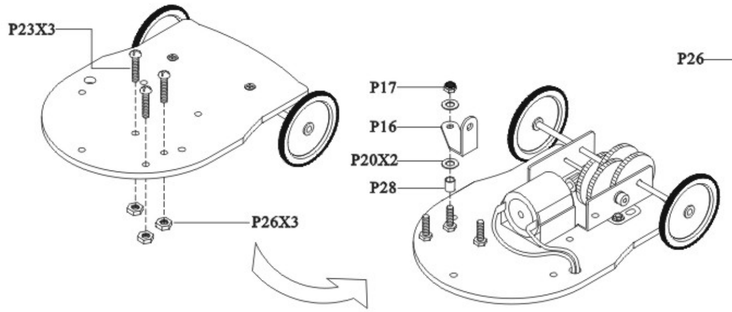


Finished Product

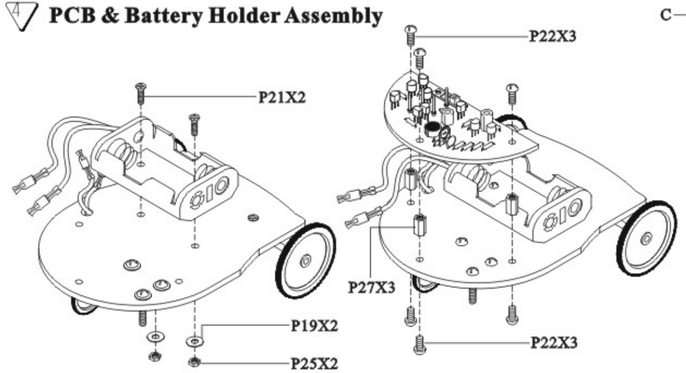
2 Mount Gear Box & Rear Wheels



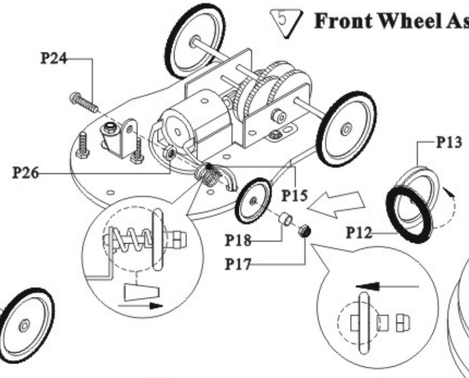
3 Bracket of Front Wheel Assembly



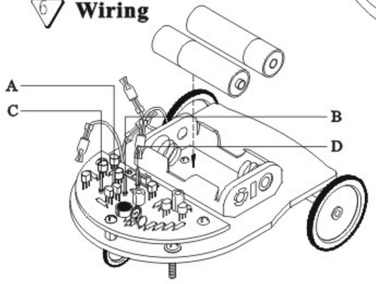
4 PCB & Battery Holder Assembly

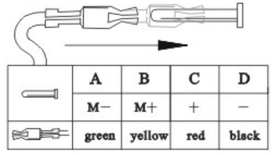


5 Front Wheel Assembly



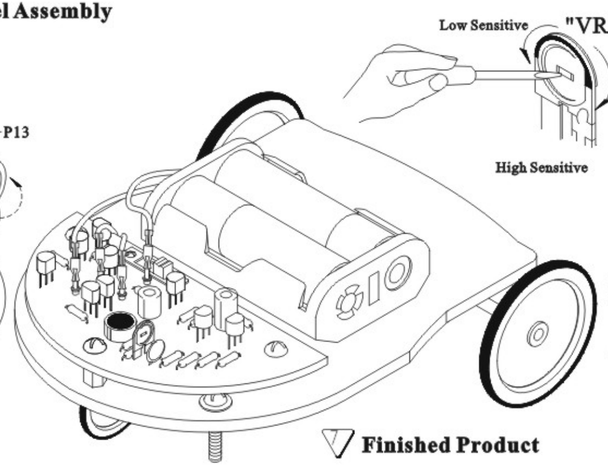
6 Wiring





	A	B	C	D
	M−	M+	+	−
	green	yellow	red	black

7 Finished Product



7. How it works:

1. Switch the unit to "ON" position.
2. Put it on to ground and see if it goes forward smoothly.
3. Clap your hand and see if it turns back and left side, then go forward again.
4. Adjust "VR" to change microphone's sensitivity.

8. Troubleshooting:

1. Make sure all components on PCB are on right position especially note the polarity of Microphone, Transistors, Capacitors are in correct position.
2. Check all wiring are same as wiring diagram.
3. If the car keeps going left, please try to adjust nut (P17) on front wheel (P13) to push spring to be tighter till it can go forward smoothly.
4. Noise from gearbox may interfere the microphone to receive signal, put few grease between face gear (P6) and 2mm shaft (P3) will reduce the noise.
5. Note**NOT** put any grease between 3mm shaft (P4) and gears (P7&P8).

9. Circuit Diagram :