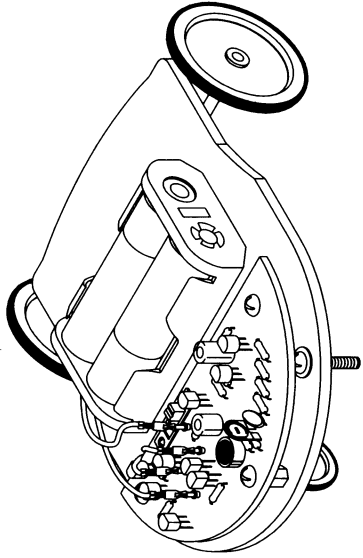


# SOUND REVERSING CAR

## 1. Product Introduction:

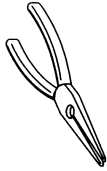








You will find it is fun to learn electronics and mechanism by building this Sound Reversing Car. It is a simple voice control robot car by using microphone as its detector. It moves forward normally unless the microphone receives signal like clap or physical contact. The car will move forward when you 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.


## 2. Tools You May Need:


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


## 3. Electronic Parts List:

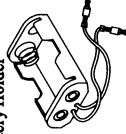
			
<b>Long Nose Pliers</b>	<b>Soldering Iron</b>	<b>AA Battery 2pcs</b>	<b>Solder Wire</b>
			
<b>Screwdriver</b>	<b>Soldering Iron Stand With Sponge</b>	<b>Diagonal Cutter</b>	

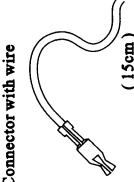
## 4. Mechanical Parts List:

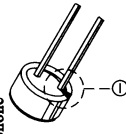
	<input type="checkbox"/> 220Ω ( red red brn gold ) 2 pc <input type="checkbox"/> 15Ω ( brn grn blk gold ) 2 pcs <input type="checkbox"/> 2.2K ( red red red gold ) 1 pc <input type="checkbox"/> 1K ( brn blk red gold ) 1 pc <input type="checkbox"/> 3.3K ( ora ora red gold ) 2 pcs
	<input type="checkbox"/> 22K ( red red ora gold ) 1 pc <input type="checkbox"/> 47K ( yel vio ora gold ) 1 pc <input type="checkbox"/> 100K ( brn blk yel gold ) 1 pc <input type="checkbox"/> 1M ( brn blk grn gold ) 1 pc <input type="checkbox"/> 2.7M ( red vio grn gold ) 1 pc

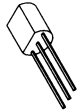
	<input type="checkbox"/> 223 1 pc
--	-----------------------------------

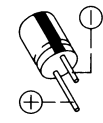
	<input type="checkbox"/> 100K 1 pc
---	------------------------------------


	<input type="checkbox"/> Holder with 8cm wires 1 pc
---	---

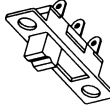
	<input type="checkbox"/> yellow 1 pc
	<input type="checkbox"/> green 1 pc

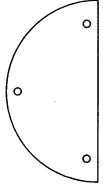
	<input type="checkbox"/> mic 1 pc
---	-----------------------------------

	<input type="checkbox"/> 8050 2 pcs
	<input type="checkbox"/> 8550 2 pcs
	<input type="checkbox"/> C945 (C1815) 5 pcs

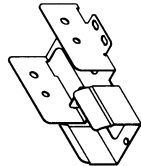
	<input type="checkbox"/> 47uf 1 pc
	<input type="checkbox"/> 1uf 1 pc

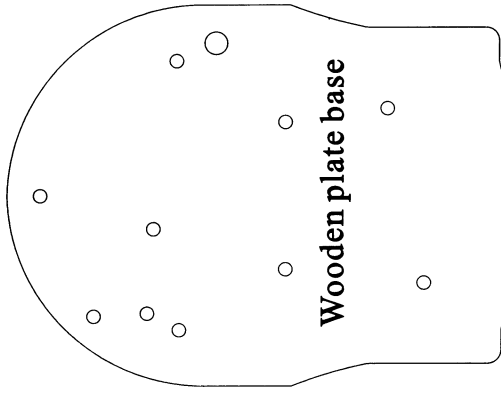
	<input type="checkbox"/> Ø 1.3mm pin 4 pcs
---	--


	<input type="checkbox"/> Slide Switch 1 pc
---	--

	<input type="checkbox"/> Printed Circuit Board 1 pc
---	---

## 4. Mechanical Parts List:

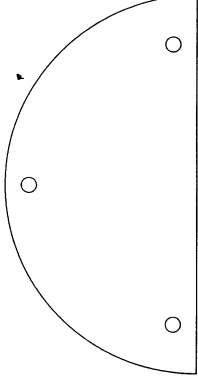
	<input type="checkbox"/> Motor DC3V 1 pc
<b>No.P1</b>	<b>Qty:</b>
<b>Gearbox</b>	<b>1 pc</b>



	<input type="checkbox"/> Metal shaft 1 pc (3X90mm)
<b>No.P4</b>	<b>Qty:</b>
<b>Metal shaft</b>	<b>1 pc (3X90mm)</b>

## 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.

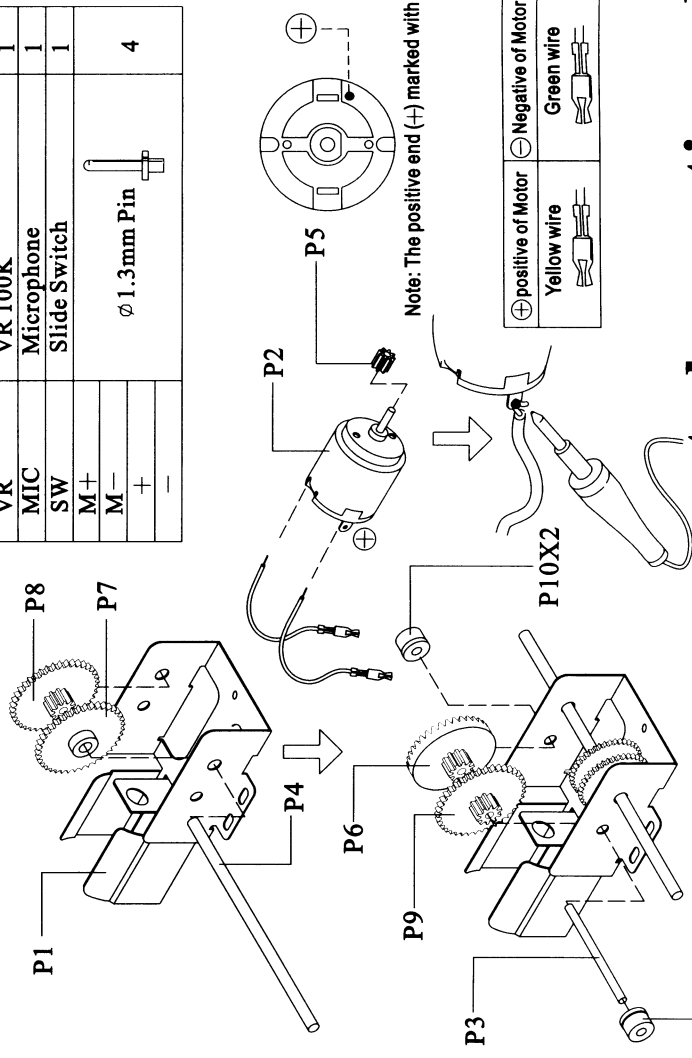
Part I.D.	Description	Color Code	Qty
R10/11	15Ω	(brn grn blk gold)	2
R8/9	220Ω	(red red brn gold)	2
R1	1K	(brn blk red gold)	1
R2	2.2K	(red red red gold)	1
R5/12	3.3K	(ora ora red gold)	2
R6	22K	(red red ora gold)	1
R4	47K	(yel vio ora gold)	1
R13	100K	(brn blk yel gold)	1
R7	1M	(brn blk grn gold)	1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

## 6. Mechanical Assembly:

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
M-		1
+		4
-		4

## 1 Gear box Assembly



Note: The protrudent edge should be toward the metal case

to be continued

	No.P8	Gear 36T/14T
	Qty:	1 pc (Red)

	No.P12	Rubber ring
	Qty:	1 pc (φ15X2.5mm)

	No.P16	Front Wheel Bracket
	Qty:	1 pc

	No.P20	Washer
	Qty:	2pcs(3.2x1.0x0.5mm)

	No.P24	Screw
	Qty:	1 pc (3X20mm)

	No.P28	Round Post
	Qty:	1 pc (φ3X6mm)

	No.P7	Gear 36T/OT
	Qty:	1 pc (white)

	No.P11	Rubber ring
	Qty:	2 pcs (φ30X3mm)

	No.P15	Spring
	Qty:	1 pc

	No.P19	Washer
	Qty:	2pcs(2.6X6X0.5mm)

	No.P23	Screw
	Qty:	3 pcs(3X18mm)

	No.P27	Hex Post
	Qty:	3 pcs(M3X10mm)

	No.P6	Face gear 36T/14T
	Qty:	1 pc (white)

	No.P10	Nylon pad
	Qty:	2 pcs (5.6X4.8X1.95)

	No.P14	Rear Wheel
	Qty:	2 pcs (φ32mm)

	No.P18	Round Post
	Qty:	1 pc (φ3X2mm)

	No.P22	Screw
	Qty:	6 pcs (3X5mm)

	No.P26	M3 Nut
	Qty:	4 pcs

	No.P5	Pinion gear 10T
	Qty:	1 pc (white)

	No.P9	Gear 36T/14T
	Qty:	1 pc (Green)

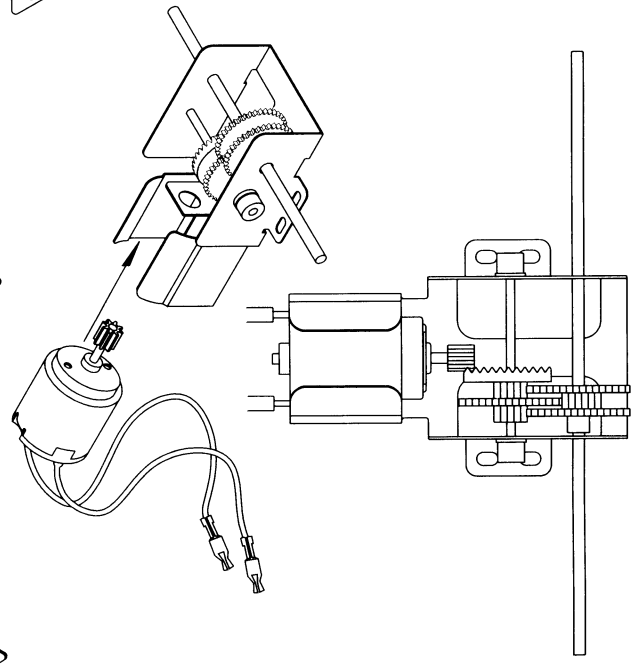
	No.P13	Front Wheel
	Qty:	1 pc (φ20mm)

	No.P17	Nylon nut
	Qty:	2 pcs

	No.P21	Screw
	Qty:	4 pcs (2X10mm)

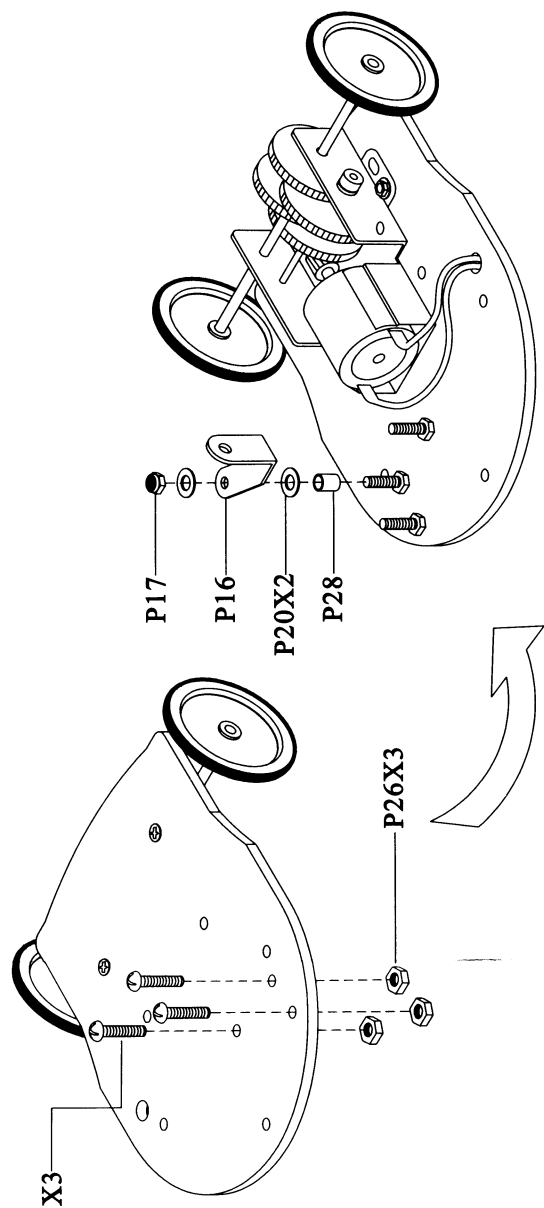
	No.P25	M2 Nut
	Qty:	4 pcs

# 1 Gear box Assembly

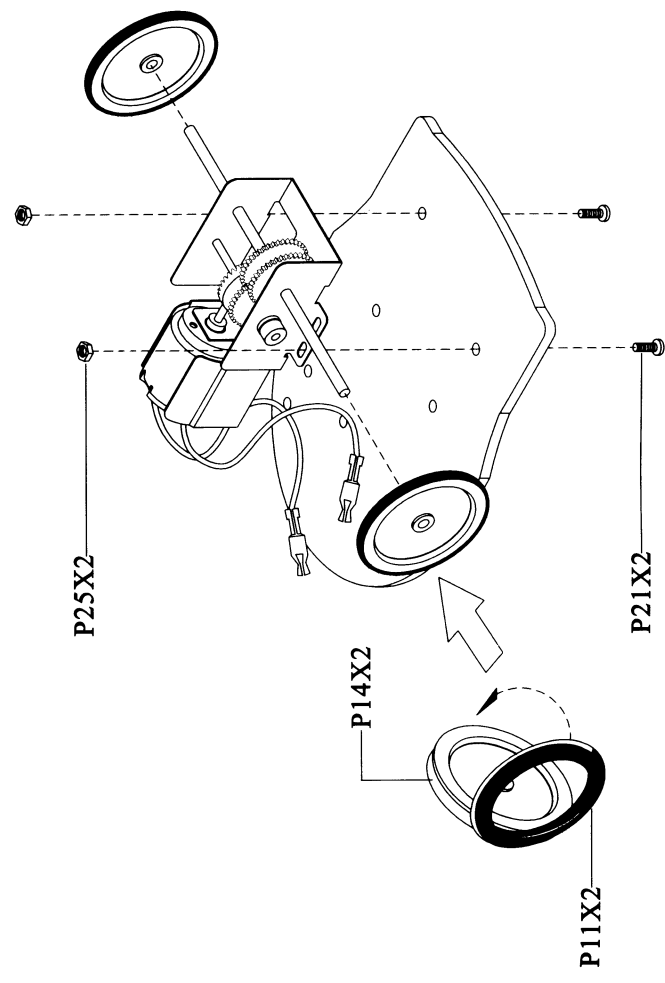


Finished Product

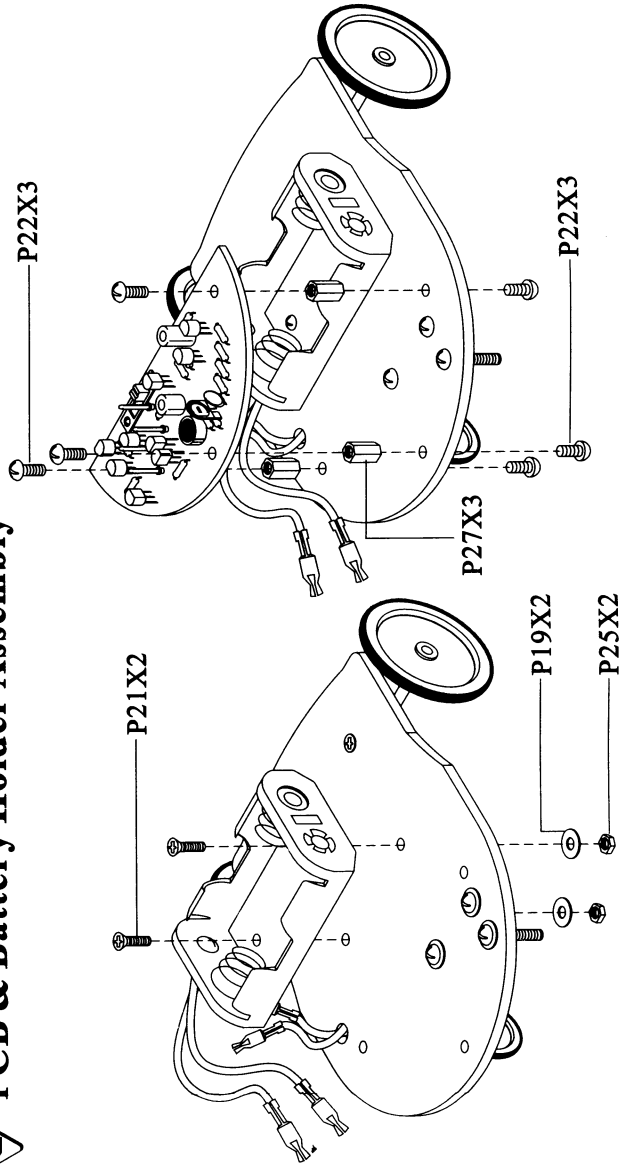
# 3 Bracket of Front Wheel Assembly



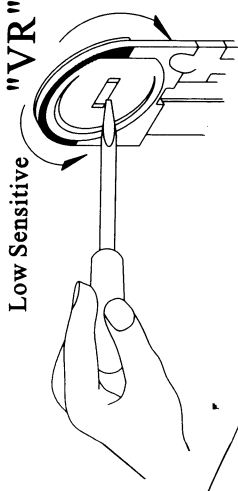
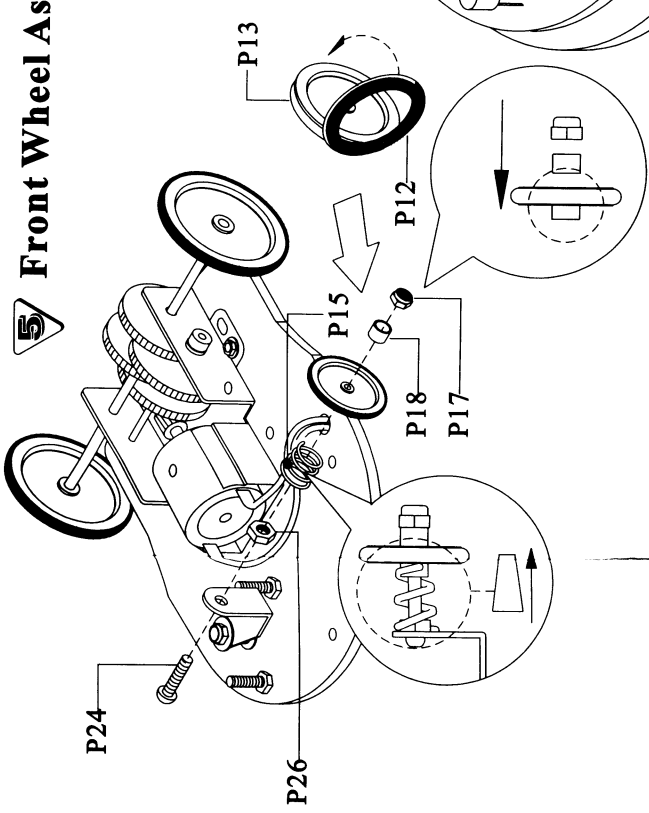
# 2 Mount Gear Box & Rear Wheels



# 4 PCB & Battery Holder Assembly



## 5 Front Wheel Assembly



## 7. How it works:

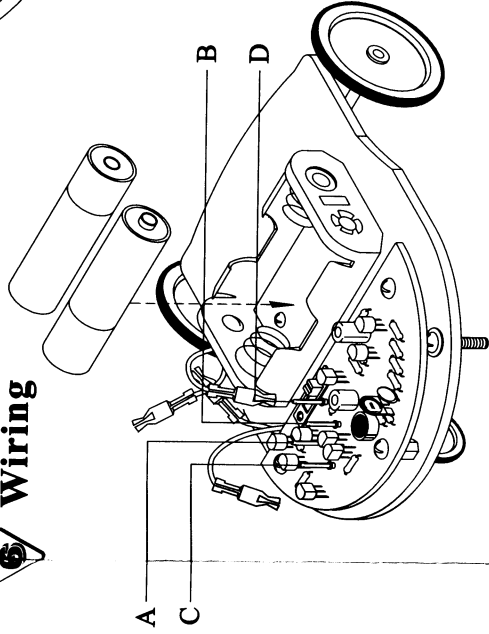
1. Switch the unit to "ON" position.
2. Put it on to ground and see if it goes forward smoothly
3. Clap your hand and see if it turns back and left side, then go forward again.
4. Adjust "VR" to change microphone's sensitivity.

## 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** to put any grease between 3mm shaft (P4) and gears (P7&P8).

## 7 Finished Product

## 6 Wiring



	A	M-	green	yellow	+	C	D
	B	M+	yellow	red	+	C	D
	C						
	D						

## 9. Circuit Diagram:

