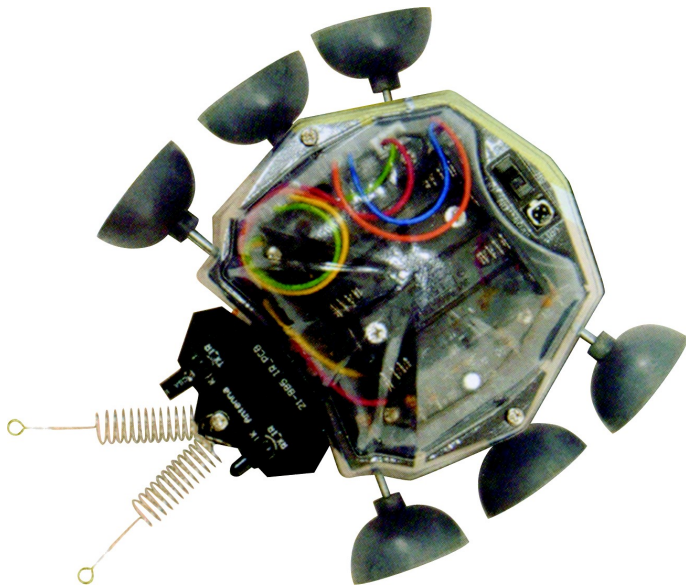








cebekit

ROBOT LADYBUG KIT C-9812



TOOLS YOU NEED

Soldering Iron	Solder Wire	AAA Battery (4pcs)
		
Long Nose Pliers	Diagonal Cutter	Screwdriver
		


The Ladybug Robot moves with its six legs and makes use of infrared emitting diodes as its “eyes” to avoid obstacles along its path. Ladybug automatically makes a left turn the moment it detects an object in its path. It continues to move forward after that if there is no shadow in front of the sensor.


The desing of the ladybug, which is based on two sets of legs, enables it to perform different of movements, thereby providing endless fun and excitement.


Power source required :


Voltage/Electrical/Mechanical: 1.5 “AAA” x4 batteries (not included)


ELECTRONIC PARTS LIST


Resistor						
	Value	Color				Qty
	10Ω	brown	black	black	gold	1 pc
	15Ω	brown	green	black	gold	2 pcs
	100Ω	brown	black	brown	gold	2 pcs
	1K	brown	black	red	gold	1 pc
	4.7K	yellow	purple	red	gold	4 pcs
	10K	brown	black	orange	gold	3 pcs
	120K	brown	red	yellow	gold	3 pcs
	1.8M	brown	gray	green	gold	1 pc

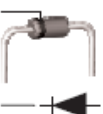
Transistor		
	Value	Qty
	C945	3 pcs
	A733	1 pc
	8050	2 pcs
	8550	2 pcs


Ceramic Capacitor		
	Value	Qty
	331	1 pc
	104	4 pcs


Black Tube	
	Qty
	1 pc


LED Holder	
	Qty
	2 pcs

Electrolytic Capacitor		
	Value	Qty
	4.7uf	1pc
	100uf	2 pcs

Diode		
	Value	Qty
	1N4148	1 pc

Integrated Circuits		
	I.D.	Qty
	LM324	1 pc

Infrared Emitting Diode	
	Qty 1 pc (Clear)

Pin Header		
	Value 4 pins	Qty 1pc

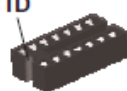

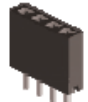



IC Socket		
	Value 14pins	Qty 1 pc

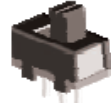
Photo Transistor	
	Qty 1 pc (Black)


Female Header		
	Value 4 pins	Qty 1pc

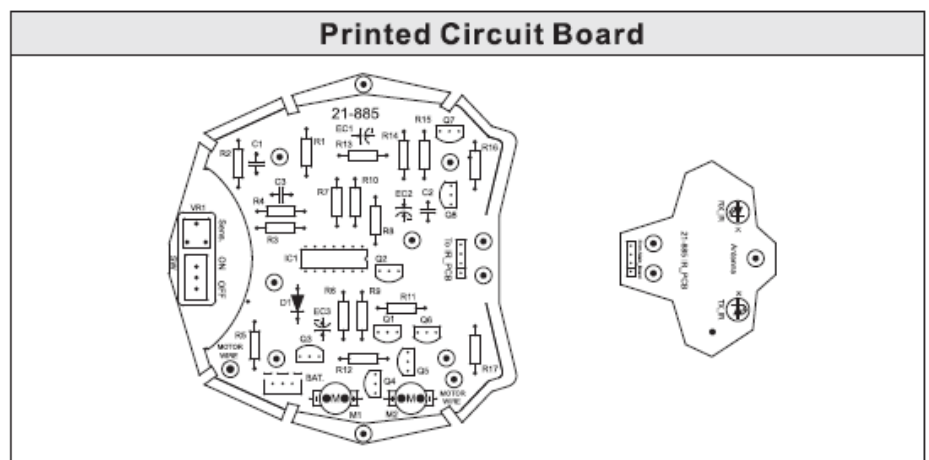
Housing		
	I.D.	Qty
	I.D.	1 pc


Pins	
	Qty 4 pcs

Variable Resistor		
	Value 50K	Qty 1 pc


Slide Switch	
	Qty 1 pc


Battery Holder	
	Qty 1 pc



Connector With Wire		
	Qty	
	Yellow	1pc
	Green	1pc
	Blue	1pc
	Orange	1pc

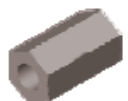
MECHANICAL PART LIST

P13	Screw
	Qty 2 pcs (3x6mm)

P15	Nut
	Qty 3 pcs (M3)

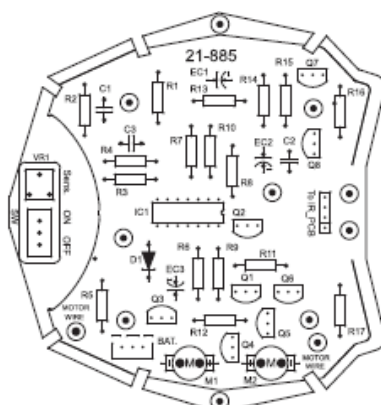
P17	Body
	Qty 1 pc

P14	Screw
	Qty 9 pcs (3x6mm)

P16	Hex Post
	Qty 4 pcs (10mm)


P18	Antenna
	Qty 2 pcs

PCB ASSEMBLY





✗ The parts I.D.(identification) for each component has been printed on PCB.


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

Part I.D. 	Description	Color Code				Qty
R11	10Ω	brown	black	black	gold	1 pc
R12 / 17	15Ω	brown	green	black	gold	2 pcs
R13 / 16	100Ω	brown	black	brown	gold	2 pcs
R1	1K	brown	black	red	gold	1 pc
R4 / 9 / 10 / 15	4.7K	yellow	purple	red	gold	4 pcs
R2 / 3 / 5	120K	brown	red	yellow	gold	3 pcs
R6 / 7 / 8	10K	brown	black	orange	gold	3 pcs
R14	1.8M	brown	gray	green	gold	1 pc

Step 2 : Mount and soldering the components such as Ceramic capacitor, Electrolytic capacitor, Transistor, Diode.






Part I.D. 	Description	Qty
C1	Ceramic Capacitor 331	1 pc
C2,C3	Ceramic Capacitor 104	2 pcs


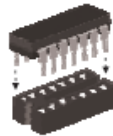

Part I.D. 	Description	Qty
EC3	Electrolytic Capacitor 4.7uf	1 pc
EC1,EC2	Electrolytic Capacitor 100uf	2 pcs

Part I.D. 	Description	Qty
Q1 / 2 / 7	Transistor C945	3 pcs
Q8	Transistor A733	1 pc
Q4 / 5	Transistor 8050	2 pcs
Q3 / 6	Transistor 8550	2 pcs

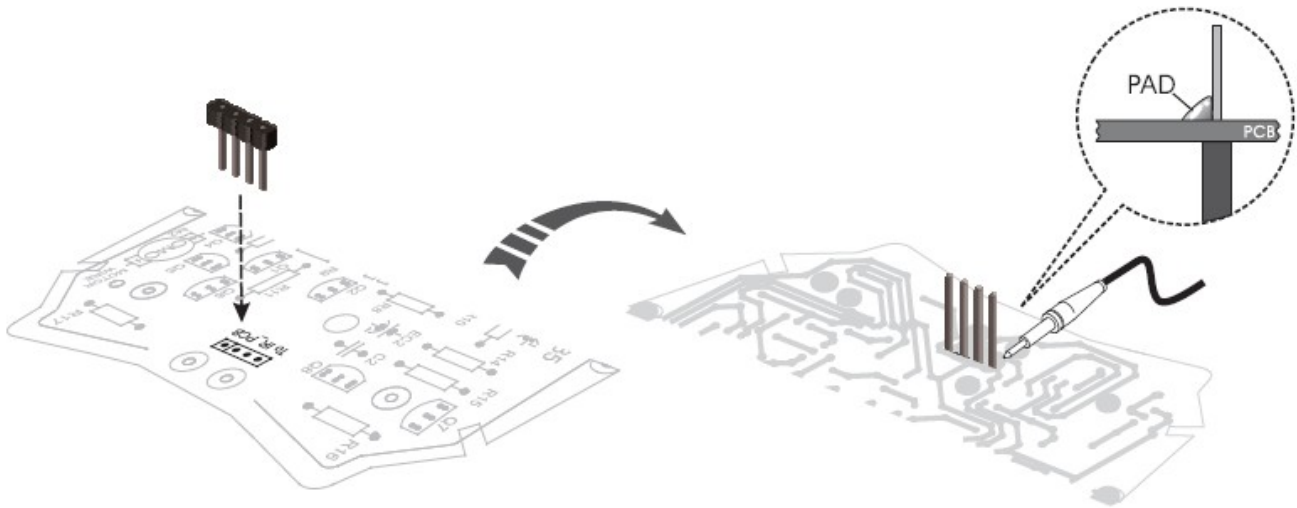
Part I.D. 	Description	Qty
D1	Diode 1N4148	1 pc

Step 3 : Mount and soldering the components such as IC socket, Housing, Slide switch, Variable resistor, Pin .




Part I.D.	Description	Qty
IC 1	IC Socket 	1 pc
BAT.	Housing 	1 pc
SW.	Slide Switch 	1 pc
VR1	Variable Resistor 	1 pc
M1(+ -)	Pins 	4 pcs
M2(+ -)		

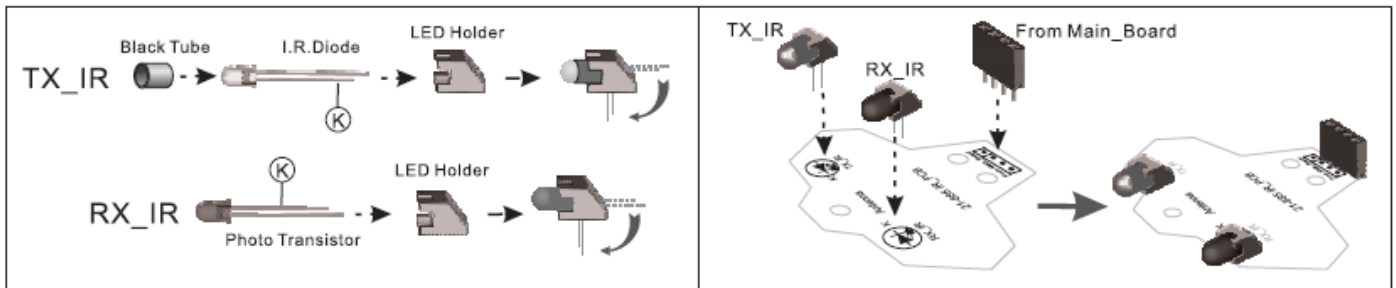
IC 1	LM324 ID  	IC Socket ID 
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Step 4 : Mount and soldering Pin header



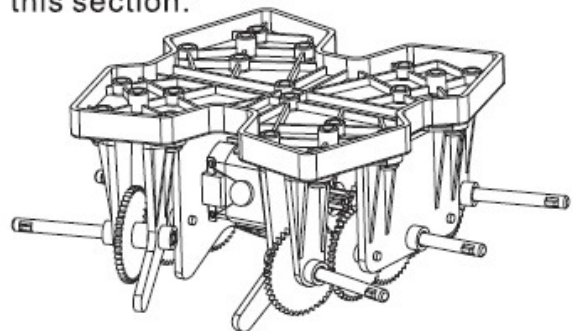
Step 5 : Mount and soldering infrared Emitting Diode, Photo Transistor, Housing

Part I.D.	Description	Qty
TX_IR	Infrared Emitting Diode 	1 pc
RX_IR	Photo Transistor 	1 pc
From Main_Board	Female Header 	1 pc

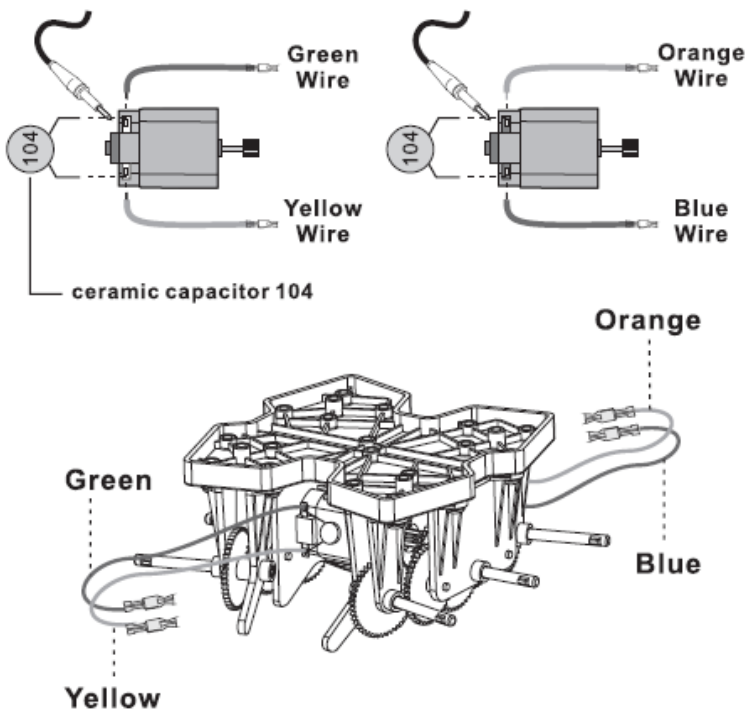


MECHANICAL ASSEMBLY

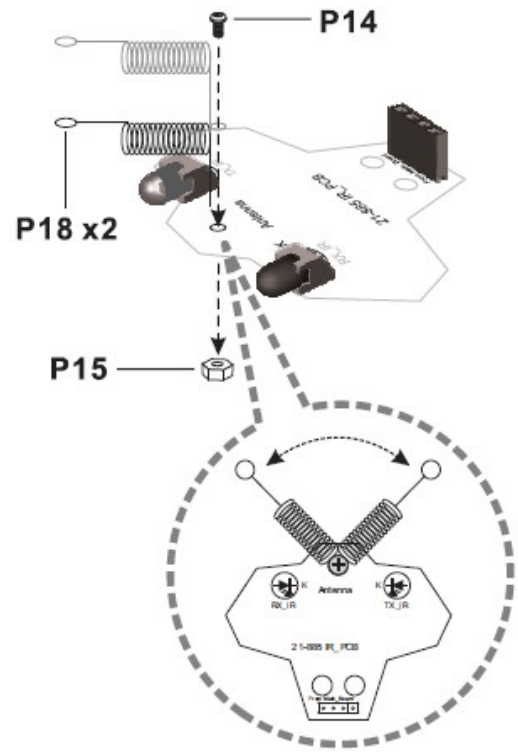
1 Assemble the gearbox first before go ahead for this section.
(Refer to the gearbox instruction manual.)



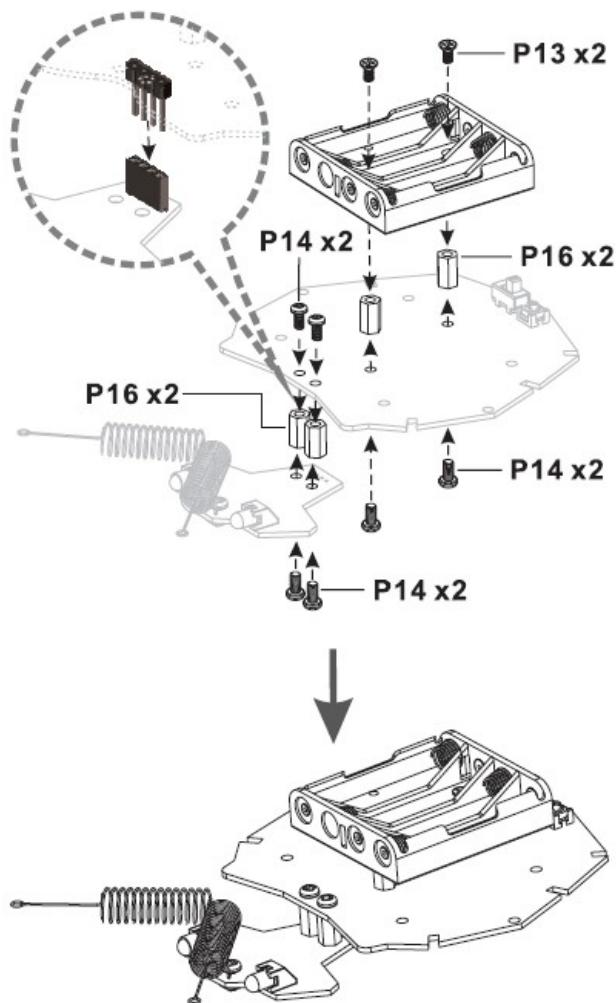
2 Toward the shaft of motor to the same way as below drawing to solder wires and ceramic capacitor.



3 Mounting Antenna

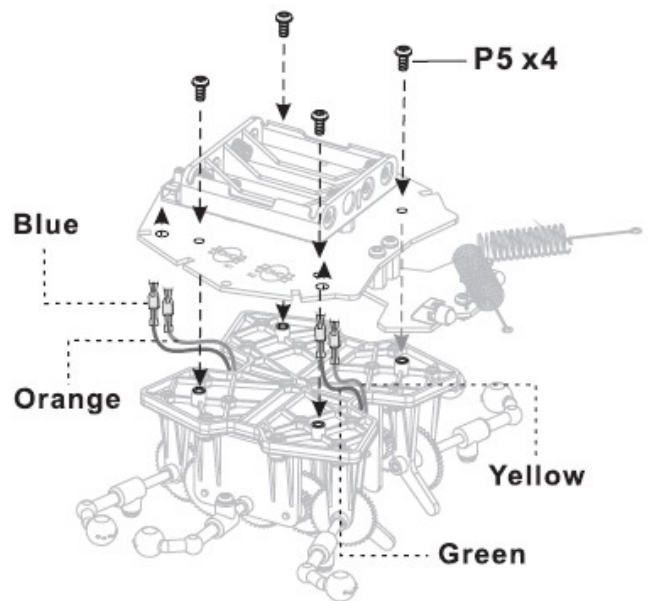


4 Battery Holder & PCB Assembly




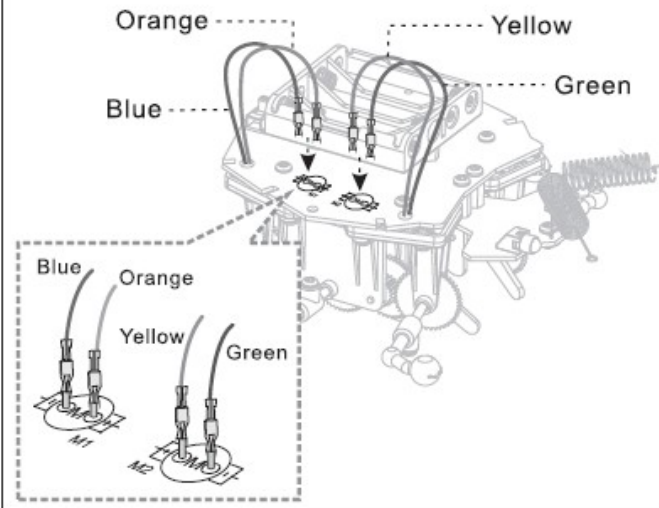
5 PCB & Gearbox Assembly

*Note : The yellow and green wires must be at front (toward the same way as infrared emitting diodes).

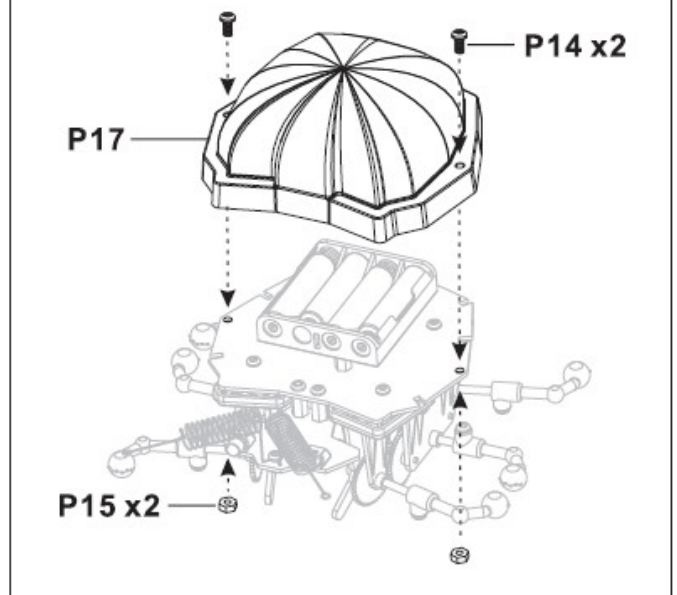


6 Wiring Assembly

	M1(+)	M1(-)	M2(+)	M2(-)
	Orange	Blue	Yellow	Green

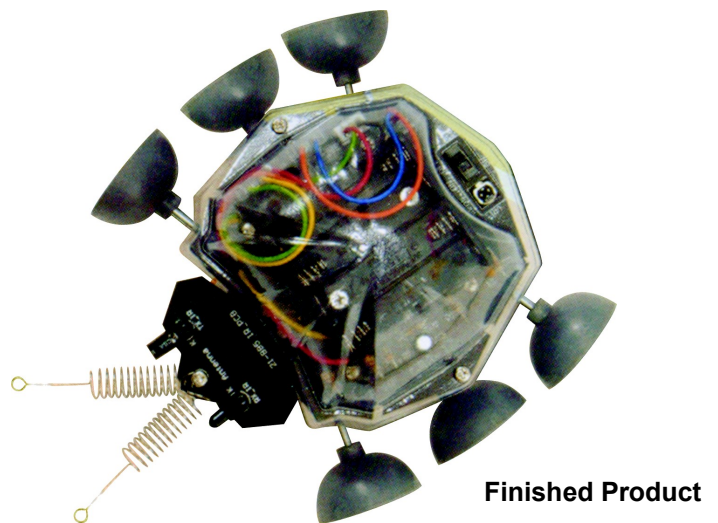
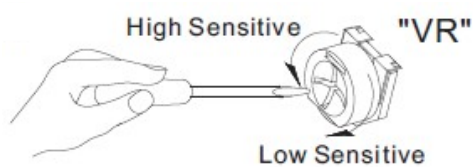


7 Body Assembly



How it works

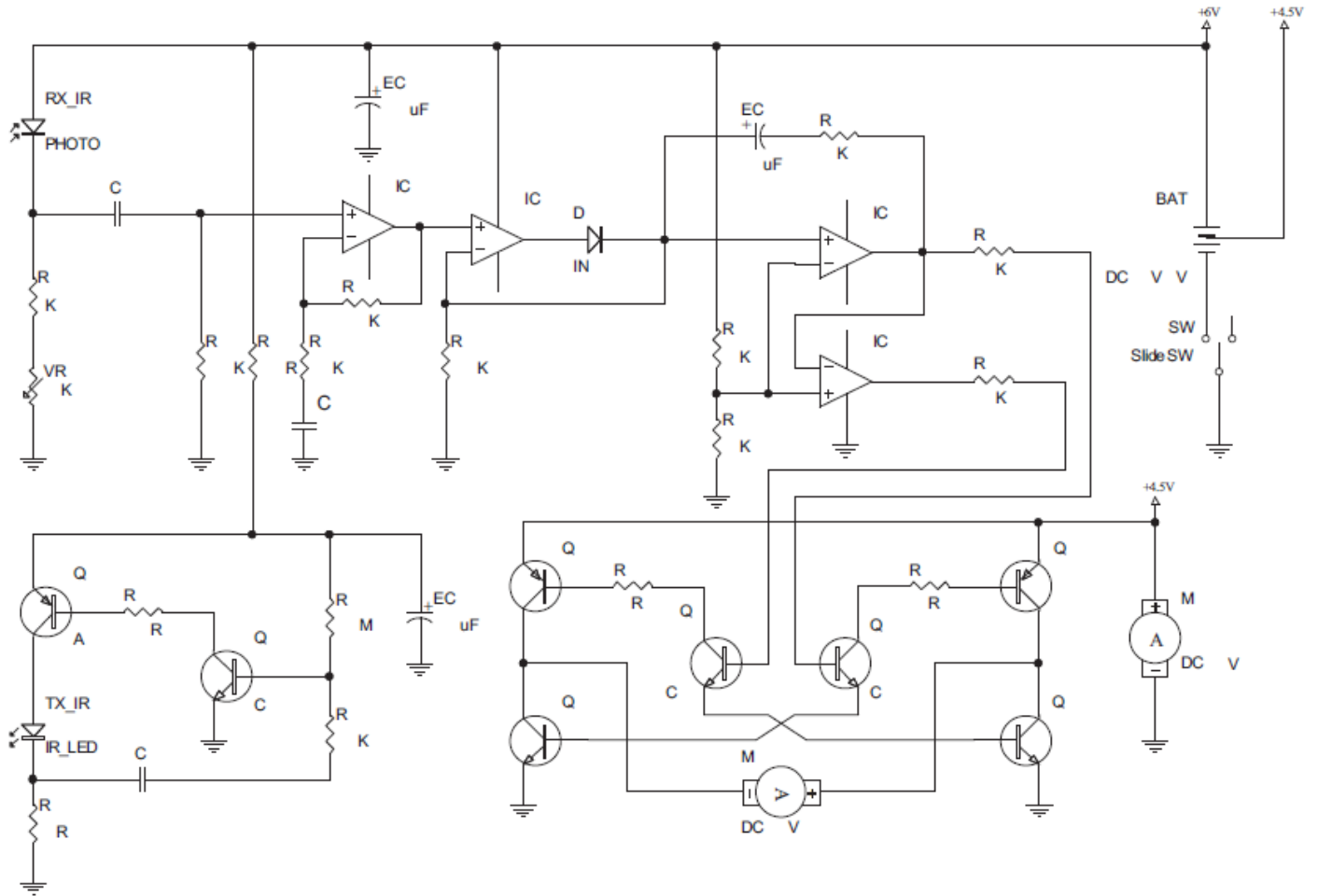
- 1 - Switch power to "ON".
- 2 - Put Ladybug Robot on the ground and see if it goes forward smoothly.
- 3 - When unit detects obstacle it will turn left. Remove the obstacle, it will go forward continuously.
- 4 - Adjusting the "variable resistor" to change the detecting distance.



Trouble shooting

- 1 - Ensure that all components on the PCB are in order. Take note especially of the polarity of the infrared emitting diode and the photo transistor.
- 2 - Ensure all wiring is correct.
- 3 - The range of detection of the unit may be affected by low battery status. Adjusting the variable resistor to improve the range.

CIRCUIT DIAGRAM



NOTE. This kit is recommended for children aged 10 years, always escorted by an adult

