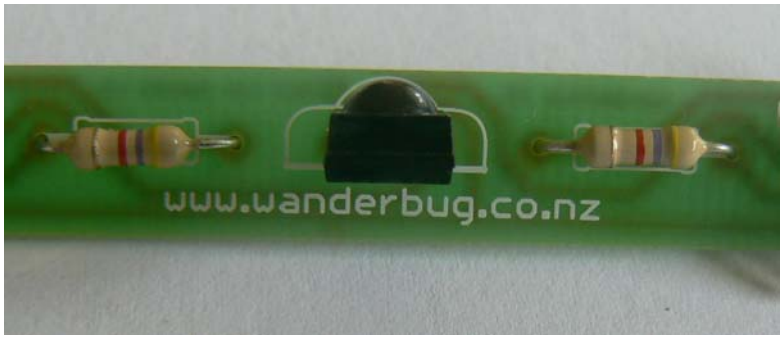
Wanderbug Infrared Avoidance Detector Assembly Instructions

1. You will need:

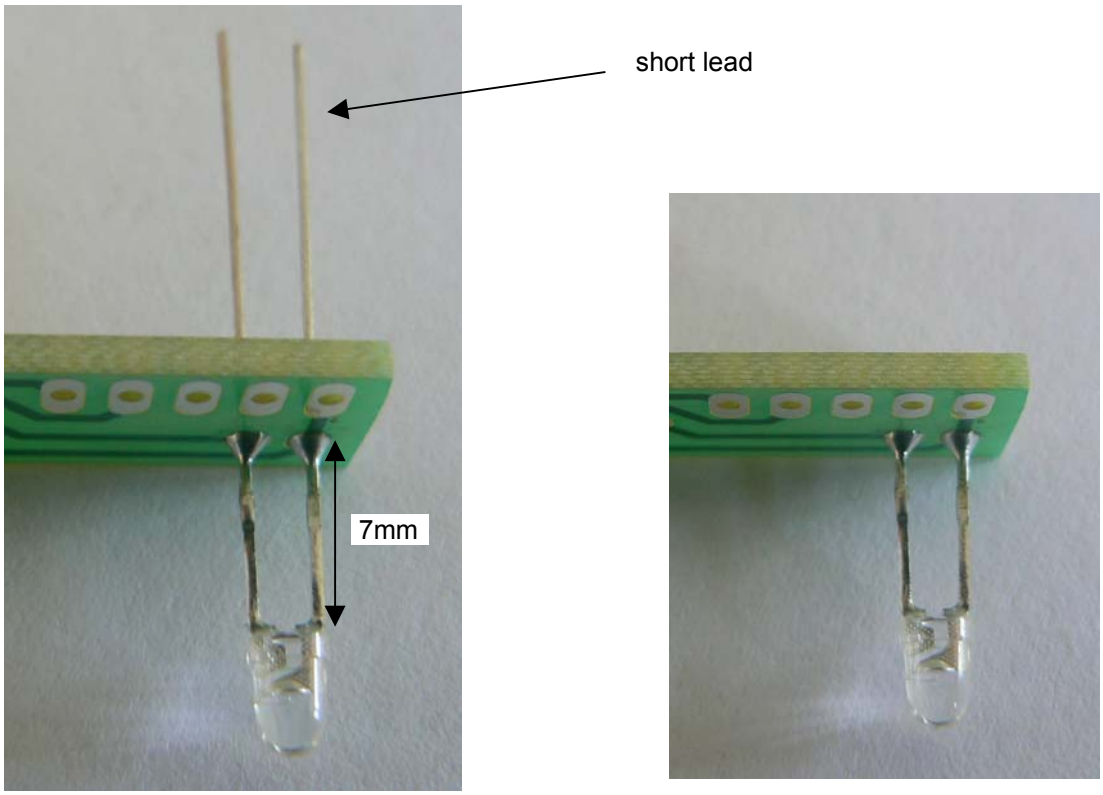
   Soldering iron, solder, long-nose pliers, side cutters.

2. Solder the two 4.7kΩ resistors in place on the daughterboard (4.7kΩ is yellow-purple-red). Snip off the excess leads.

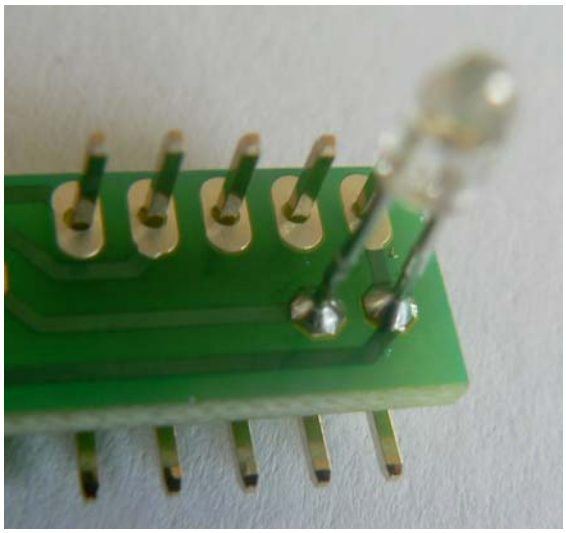
3. Solder the infrared detector facing forward in the centre of the board. Snip off the excess leads.

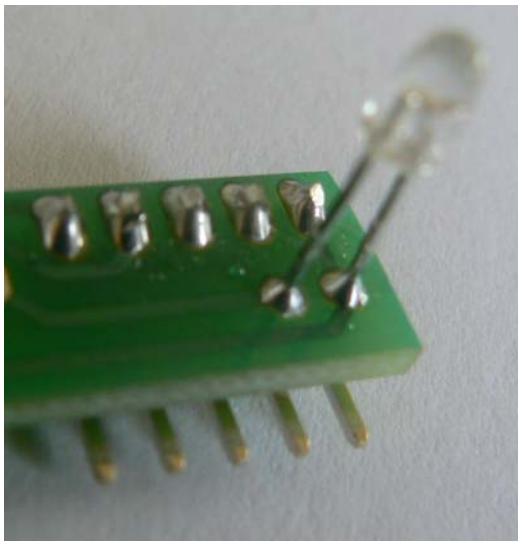


4. Solder the two infrared LEDs on the bottom (solder side) of the board leaving 7mm of lead showing. The short lead must match the flat side of the IRled footprint, facing outwards. Snip off the leads as close as possible to the top of the board.

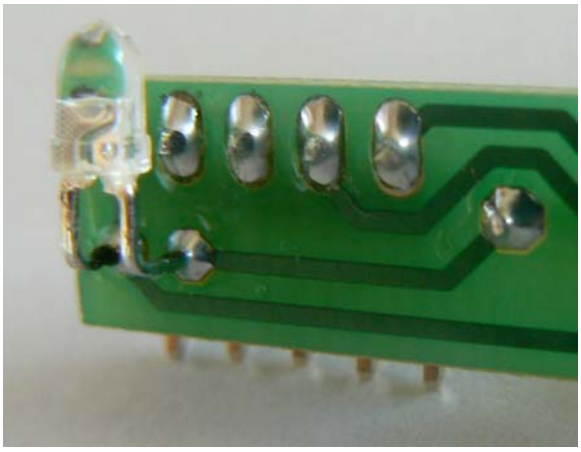


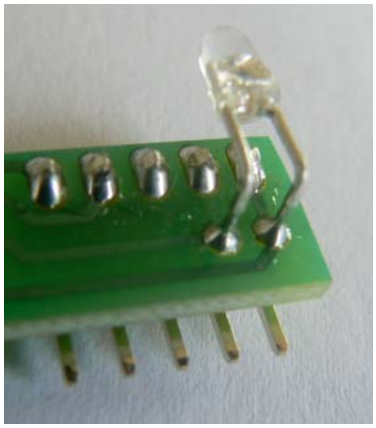
5. Fit the right-angle headers in place, solder and snip off the excess pins.





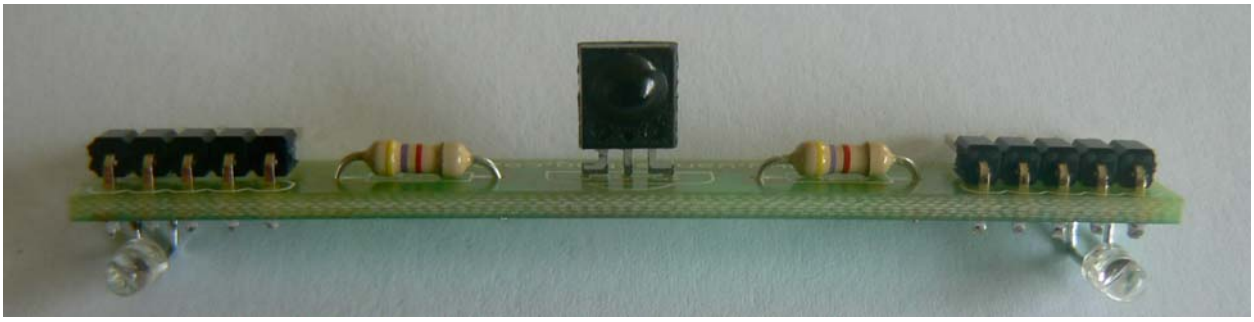
6. Bend the IR LED leads at right angles pointing forwards using long-nose pliers.



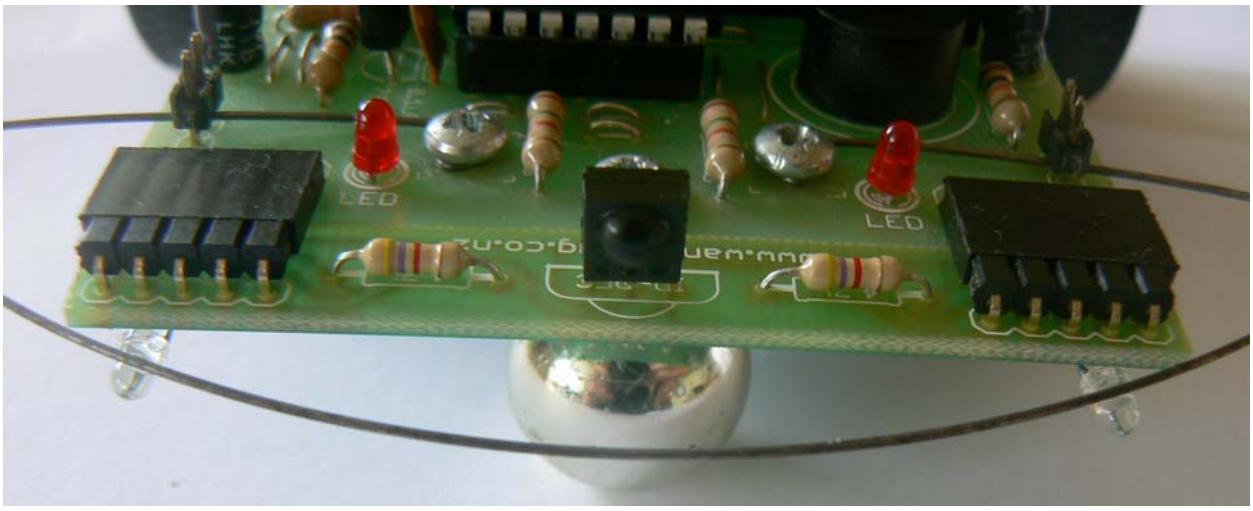


From the top it looks like this:

From the front it looks like this:



Fitted, it looks like this:



Wanderbug IR kit parts list		
Item No.	**Qty**	**Description**
1	1	PCB
2	1	IR receiver
3	2	Resistor 4.7k
4	2	5M R/A Pin Header
5	2	IR LEDs

Sample Code

```
                    'Wanderbug infrared obstacle avoider
                    'PICAXE 14M2

'input pin c.0 = sense
'output pin b.0 = look right, right IRLED
'output pin b.1 = look left, left IRLED

let dirsb = %00111111 'configure Port B pins as outputs (see P15 of manual 2)
let dirsc = %00000010 'configure Port C.1 pin as output (see P15 of manual 2)

setfreq m8            'faster pulses to match IR detector, pause is 500us

start:                      'forward
low c.1:low b.0:low b.1     'buzzer off, LEDs off
high b.2:low b.3            'right wheel forward
high b.4:low b.5            'left wheel forward

pulsout b.0,1               'send a pulse from the right
if pinc.0 = 0 then
     gosub lft              'return pulse detected, go left
endif

pulsout b.1,1               'send a pulse from the left
if pinc.0 = 0 then
     gosub rgt              'return pulse detected, go right
endif

if pinc.3 = 0 then
     gosub rgt              'left bumper has hit an object
endif
if pinc.4 = 0 then
     gosub lft              'right bumper has hit an object
endif

goto start                 'no object detected, continue forward

lft:                        'reverse turn left
high b.0                    'right LED on
low b.2:high b.3            'right wheel backward
low b.4:high b.5            'left wheel backward
pause 600                   'reverse for 300 milliseconds
low b.3                     'stop right wheel,
high c.1                    'sound the buzzer
pause 400                   'turn for 200 milliseconds
return                      'continue forward

rgt:                        'reverse turn right
high b.1                    'left LED on
low b.2:high b.3            'right wheel backward
low b.4:high b.5            'left wheel backward
pause 600                   'reverse for 300 milliseconds
low b.5                     'stop left wheel
high c.1                    'sound the buzzer
pause 400                   'turn for 200 milliseconds
return                      'continue forward
```