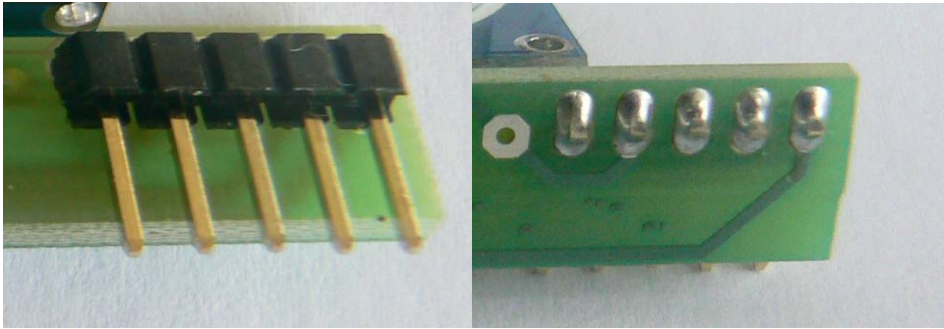


Wanderbug Ultrasonic Avoidance Detector Assembly Instructions

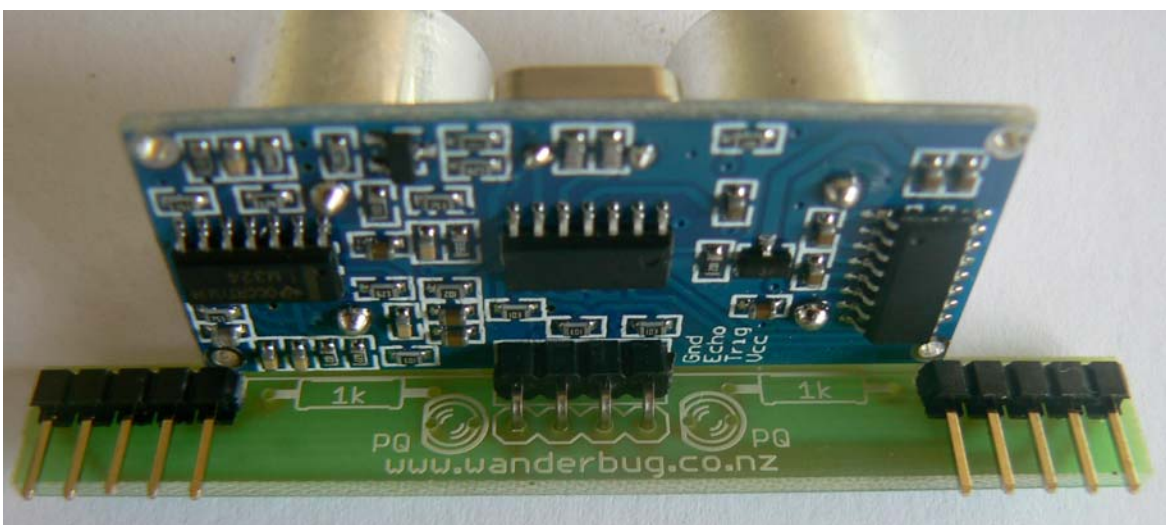
1. You will need:
Soldering iron, solder, side cutters.
2. Fit the right-angle headers in place, solder and snip off the excess pins.



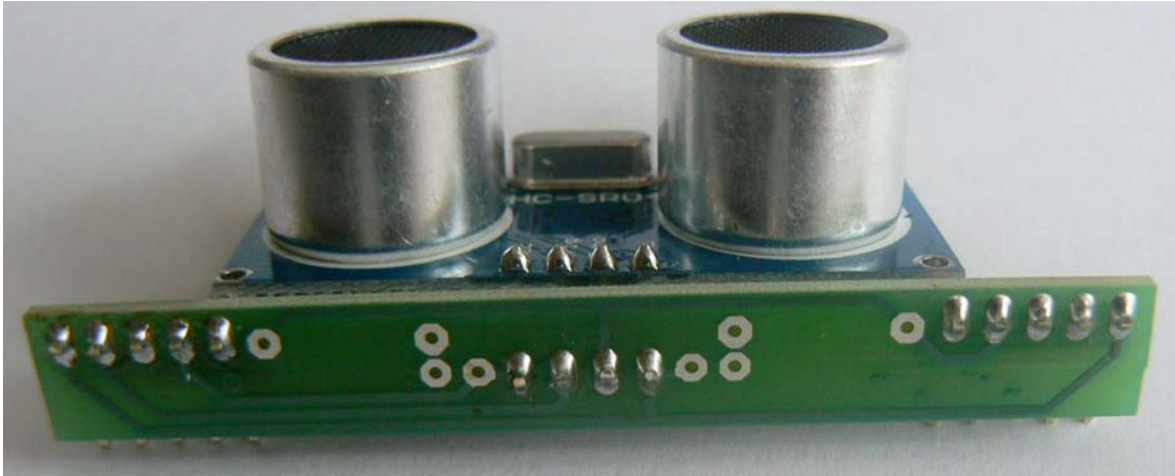
3. Solder the ultrasonic detector facing forward in the centre of the board. Snip off the excess leads.



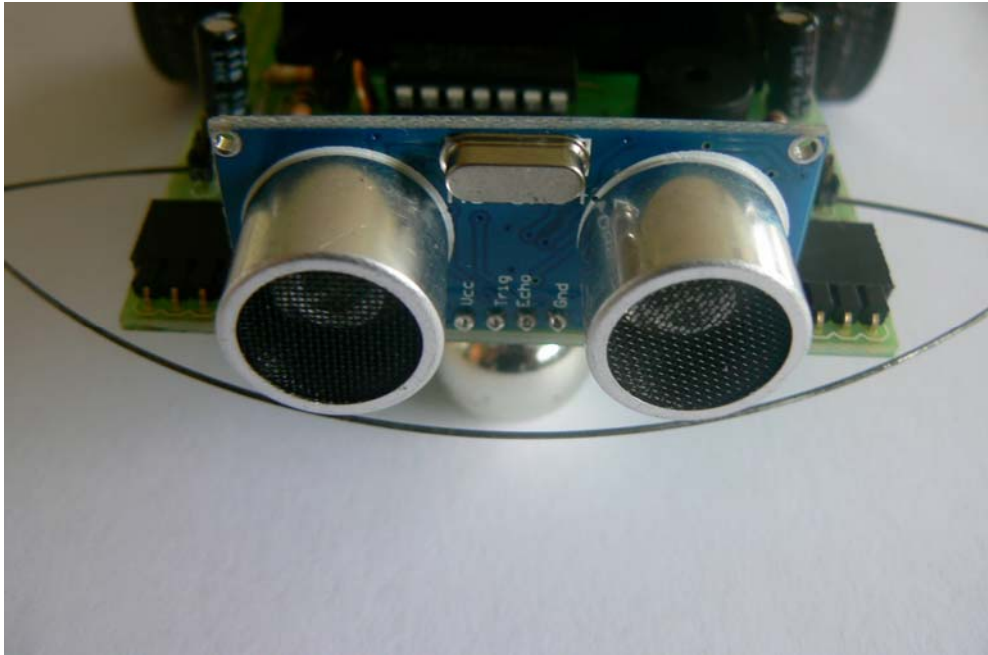
From the top and back it looks like this:



From the bottom it looks like this:



Fitted, it looks like this:



| Wanderbug Ultrasound kit parts list | | |
|-------------------------------------|-----|------------------------|
| Item No. | Qty | Description |
| 1 | 1 | PCB |
| 2 | 1 | Ultrasound transceiver |
| 4 | 2 | 5M R/A Pin Header |

Sample Code

```
'Wanderbug ultrasonic rangefinder - PICAXE 14M2
'input pin c.0 = echo, output pin c.2 = trig

let dirsb = %00111111
let dirsc = %00000110
symbol range = w0
symbol speed = w1

start:
low c.1:low b.0:low b.1
gosub rangechk
if range < 10 then
    gosub back
endif
speed = 10 * range min 160 max 400
pwmout b.2, 100, speed:low b.3
pwmout b.4, 100, speed:low b.5

if pinc.3 = 0 then gosub rgt
if pinc.4 = 0 then gosub lft

goto start

back:
pwmout b.4, off
pwmout b.2, off
high b.0: high b.1
low b.2:high b.3
low b.4:high b.5
pause 500
low b.5
high c.1
pause 500
return

lft:
high b.1
low b.2:high b.3
low b.4:high b.5
pause 300
low b.3
high c.1
pause 200
return

rgt:
high b.0
low b.2:high b.3
low b.4:high b.5
pause 300
low b.5
high c.1
pause 200
return

rangechk:
setfreq m8
pulsout c.2,3
pulsin c.0,1,range
range = range * 5 / 58
pause 50
setfreq m4
return
```

```
'configure Port B pins as outputs (see P15 of manual 2)
'configure Port C pins (see P15 of manual 2)
'range
'speed

'forward
'buzzer off, LEDs off
'check range
'less than 10 cm, then
'reverse away

'slower as we get closer
'right wheel forward
'left wheel forward

'left bumper has hit an object
'right bumper has hit an object

'check range again

'backup and reverse turn right
'pwm off on
'both wheels
'both LEDs on
'right wheel backward
'left wheel backward
'reverse for 500 milliseconds
'stop left wheel
'sound the buzzer
'turn for 500 milliseconds
'continue

'reverse turn left
'left LED on
'right wheel backward
'left wheel backward
'reverse for 300 milliseconds
'stop right wheel,
'sound the buzzer
'turn for 200 milliseconds
'continue

'reverse turn right
'right LED on
'right wheel backward
'left wheel backward
'reverse for 300 milliseconds
'stop left wheel
'sound the buzzer
'turn for 200 milliseconds
'continue

'get range to obstruction
'set frequency to 8 MHz
'send trigger
'get range in 10uS steps
'convert to cm
'pause 25 ms
'set frequency to 4 MHz
'continue
```