Sensors Troubleshoot

Q1. My sensors are not working.

(A1) Check if you have any of the following problems –
Symptoms: -
1. Line sensors not working.
2. Obstacle sensors not working.

Debugging Steps: -
1. First of all check whether the sensors are enabled or not by DIP switch (red colour) below LCD. Slide all switches to "On" side.
2. Check whether the IR LED's in white colour are emitting IR light or not. (IR Light is not visible for human eyes. Use camera for checking).
3. Sensors are having indication LED's on the top side. Please check indication LED's. (Use white paper and keep it below the sensors and the indication LED should glow).
4. In case of Obstacle sensors, make sure the transmitting LED and receiving one (both are in pairs – right, left and centre) are not far away. Or pull them near without breaking them.
5. Please also check that your battery is properly charged or else the sensors won't function properly.

If all the above tests are 'OK' then your sensors are working perfectly and needs no calibration;
And your Qu-Bot should move according to the program.

Q2. I have a problem with DIP Switch.

(A2) This may be due to damage in Sensor Selection switch. Just check continuity of all four switches. You can check the continuity using a multi-meter or any other continuity tester circuit. One of them must be non working. Just short those using a lead from the bottom side and your sensors will work.
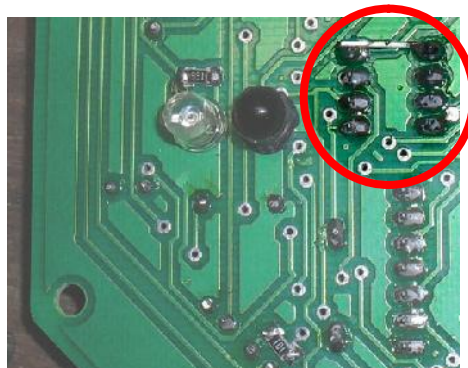
Q3. My motor counters (encoders) are not working; the count remains zero for ever.

(A3) The motor counters increases when it gets pulses from encoder sensors. Encoder sensor is made of two parts one is IR emitter second is IR receiver. The status of encoder sensor is indicated by an LED near it. If that LED doesn't blink when the wheel rotates, it means that either your sensors are not switched on or they are constantly sensing the wheel or they are not working properly. Follow the steps written below.

1. If the status LED remains off when you rotate wheel - your sensors are either switched off or they are not sensing correctly. Check if the sensors are turned off. You can check for the dip switch under LCD (refer manual). Make sure you make all the sensors "ON" (By default all the sensors are on). If the transmitter and receiver are bent and are away from each other pull them in together.

2. If the above step doesn't work and sensors are powered on, put a white paper between wheel and sensor if the status LED turns on. If it's still off, check the IR LED with a mobile camera, you should see light in it. If you can't see it lit, means the LED doesn't get power and you should check the switch for the continuity again.

3. If status LED is constantly on - means your IR Emitter and sensor is too close (Refer Q4). Check and set the sensitivity by manually rotating wheel.

4. If the LED blinks but you cannot get the counts, please refer user's manual for programming. Check it with sample codes.

Q4. My sensors are sensing continuously.

(A4) If line sensors are sensing continuously, check if your bottom surface is white. If obstacle sensors are sensing continuously, the IR Emitter and IR sensor is too close; bend one of them slightly apart. Keep on checking for sensitivity and adjust it near to a range of 8-10 cms. If the problem still persists, the IR receiver must be damaged. You may change it with a new one.

Q5. How can I use sensors for C-programming?

(A5) The Sensors give digital output. Set DDR as 0 for those pins and take output from PIN register.