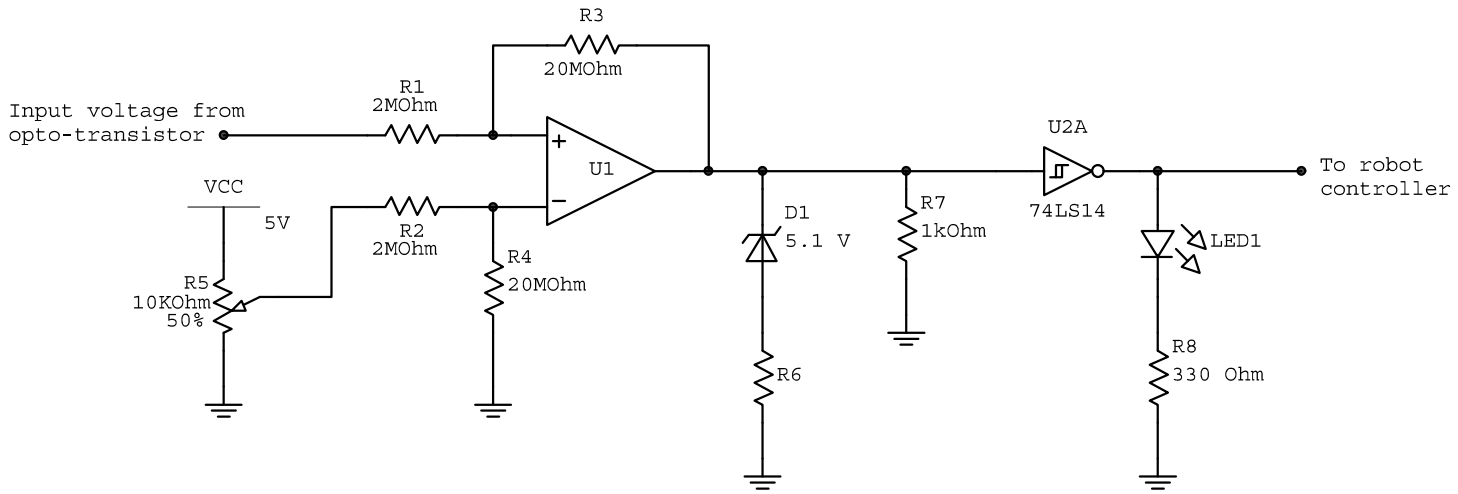

Information:

U1 is an op-amp. Any general purpose op-amp will do. They can be purchased for about 0.65CAD at Supremetronics for a package of 2 op-amps. An example of a general purpose op-amp is LM258.

The op-amp in this example is acting as a differential amplifier. In this example, R1 and R2 must be identical in value, let this value be Ra. Also, R3 and R4 must be identical in value, let this value be Rb. Then the potential outputed by the op-amp can be determined by the following relationsip:

$$V = \frac{Rb}{Ra} * (V+ - V-)$$

This allows you to subtract out ambiant light which your opto-transistor may be picking up. Simply adjust R5 until you can "see" the distinct flashes on LED1.

D1 is a zener diode. Any 5.1V or 4.7V zener diode will do. Make sure the polarity is right. I can't remember the exact value of R6, but start with a 1KOhm resistor and see what happens. The potential difference between the output of the op-amp and ground should be close to 5V. Increase R6 to increase the potential difference and decrease R6 to decrease the potential difference.

The 74LS14 is a schmitt trigger. It removes hysteresis and noise from the circuit before allowing it to enter the computer.

Its been a while since I constructed this circuit so I may have got some of the values slightly off. However, this circuit should still work in principle and I have constructed working
ones last year. Good luck and have fun!

Title: Eye		
Replacement for the Vishay TSOP48xx IR reciever that comes with the robotics kit		
Designed by: Yi Yao	Document N: 0001	Revision: 1.0
Checked by:	Date: Oct 19, 2004	Size: A
Approved by:	Sheet 1 of 1	