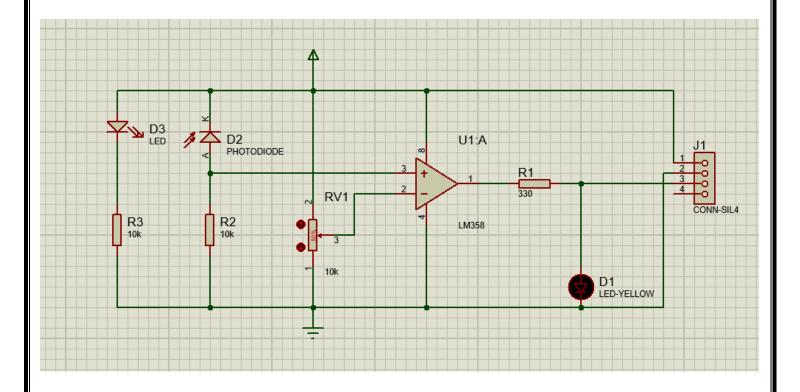
# SIMPLE IR OBJECT DETECTOR PCB

#### Summary

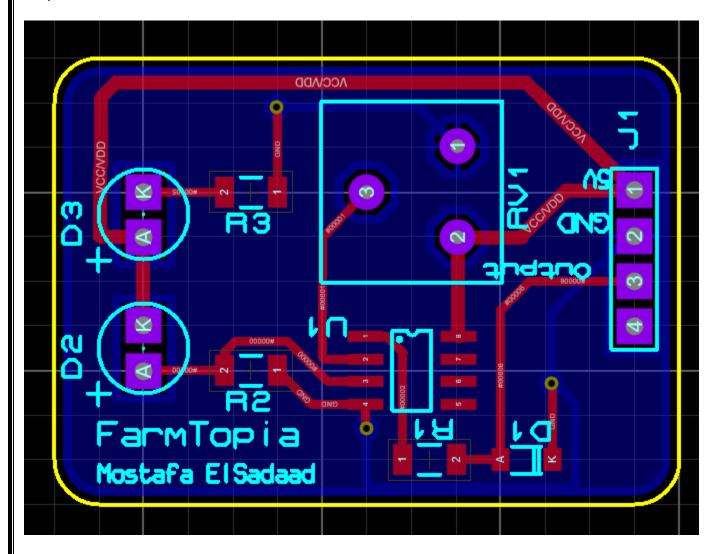
An infrared (IR) object detector sensor is an electronic device that detects if there is an object in front of it using IR LED and a photo diode. I designed and implemented that simple PCB from scratch. Only using proteus for schematics, simulation and PCB designing.

#### **Schematics**



Using LM358 as a comparator, IR LED and photodiode (as a voltage divider). When the photodiode receives a signal to the potential at the inverting input goes low. Thus the output of the comparator (LM358) goes high and the LED starts glowing. Resistor RV1 (preset=10k) is used to set the sensitivity of the circuit.

#### Layout



The layout is simple and I think it could be done in one layer and could be smaller if spent more time in it. I made sure that the minimum trace width is 0.3mm so it can supply a max of 1 Amps , but for that simple circuit it won't exceed that current, I also increased the width of the VCC track to make sure it won't heat up. Also , the components placement made it easy for debugging and soldering.

### Bill of materials (BOM)

Item #	Qty	Mfg Part #	Description / Value	Package	Туре
1	1	LM358	IC OPAMP DUAL	SOP8	SMD
2	4	Resistor	1/4W Fixed Resistor	RESC3216X63	SMD
3	1	Potentiometer	10k ohm carbon potentiometer	PRE-SQ4	Thru-hole
4	1	LED	0.5W SMD LED	DMM	SMD
5	1	Infrared LED	IR LED Transmitter 940NM (3mm)	LED	Thru-hole
6	1	Photodiode	IR Receiver 2-PIN (IRR LED 5mm)	LED	Thru-hole

## 3D Visualization

