



HDU-ITMO Joint Institute
杭州电子科技大学 圣光机联合学院

INFORMATION SENSORS

LAB WORK REPORT

For Lab Work №5

“Distance and proximity sensors I”

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I. The circuit

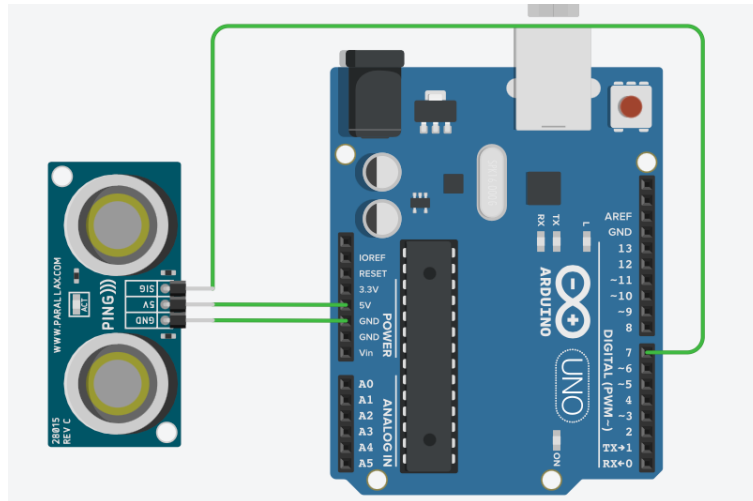


Figure 1. PING))) sensor circuit

II. Link to a TinkerCAD project:

https://www.tinkercad.com/things/dahzyPyiiHe-lab-work-51?sharecode=N9j2Dq-TYp_b8bDEnvLARCh10rcDg3vjLuGdFWcw5I

III. The circuit

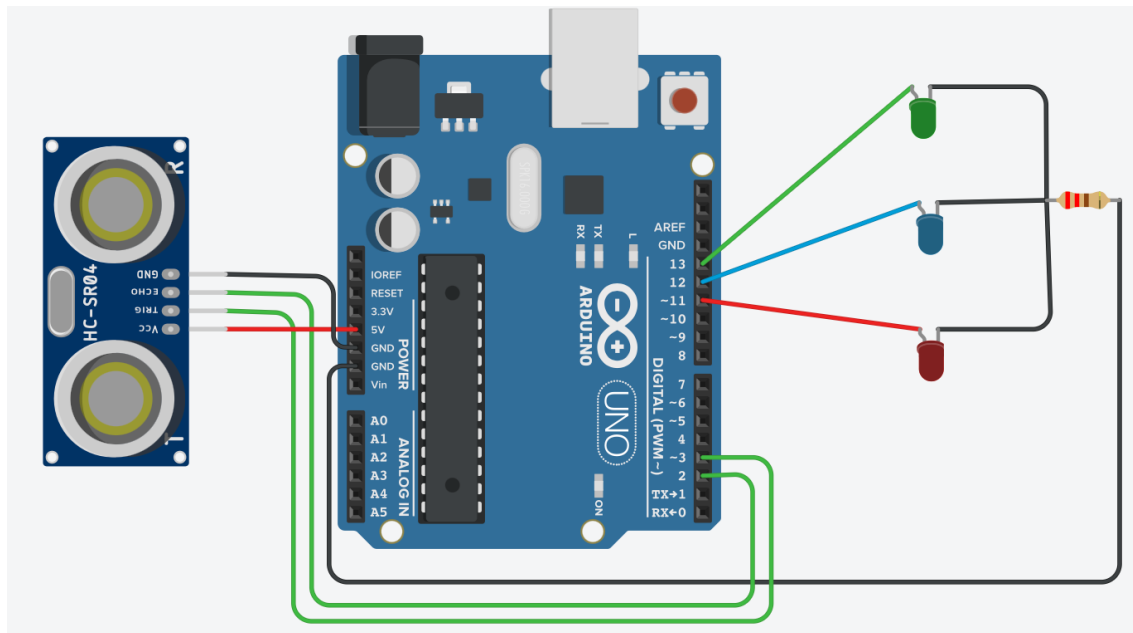


Figure 1. HC-SR04 sensor circuit (with LED)

IV. Link to a TinkerCAD project:

<https://www.tinkercad.com/things/gnmZQj22mfJ-lab-work-52?sharecode=YJtGUdm8hzGeKKPQoFB8griTggD6he6lPirURDV8u44>

V. Table 1. Calibration of the PING))) and HC-SR04 sensors.

PING)))						HC-SR04				
Distance										
Measured, cm	Real, cm	After calibration	Error,%	Error After calibration%	Measured, cm	Real, cm	After calibration	Error,%	Error After calibration%	
2	2.1	2.1	-5.00%	-5.00%	2	2.5	2.2	-25.00%	-10.00%	
30	31	30.3	-3.33%	-1.00%	30	30.4	30.2	-1.33%	-0.67%	
60	61.2	60.5	-2.00%	-0.83%	60	61.2	60.7	-2.00%	-1.17%	
90	91.5	90.6	-1.67%	-0.67%	90	91.4	90.8	-1.56%	-0.89%	
120	121.7	121.2	-1.42%	-1.00%	120	121.5	120.4	-1.25%	-0.33%	
150	152.8	151.3	-1.87%	-0.87%	150	152.4	151.8	-1.60%	-1.20%	
180	183.2	182.5	-1.78%	-1.39%	180	182.7	181.6	-1.50%	-0.89%	
210	213.4	212.3	-1.62%	-1.10%	210	213.5	212.1	-1.67%	-1.00%	
240	234.8	238.9	2.17%	0.46%	240	243.1	242.8	-1.29%	-1.17%	
270	274	273.2	-1.48%	-1.19%	270	273.2	271.9	-1.19%	-0.70%	
300	304.4	302.6	-1.47%	-0.87%	300	304.2	302.5	-1.40%	-0.83%	
330	334.9	333.5	-1.48%	-1.06%	330	333.5	332.3	-1.06%	-0.70%	