

List of possible subjects for a homework (approximately 3 pages, with figures)

Automation

Projects		Applications	Student	Coworker(s)
1.	Arduino + temperature sensor	Principles		
		Specific application 1		
2.	Arduino + remote temperature sensor	Principles		
		Specific application 1		
3.	Arduino + temperature and humidity sensor	Principles		
		Specific application 1 Weather station		
4.	Arduino + accelerometer sensor	Principles		
		Specific application 1		
5.	Arduino + smoke sensor	Principles		
		Specific application 1		
6.	Arduino + flammable gas sensor	Principles		
		Specific application 1		
7.	Arduino + alcohol sensor	Principles		
		Specific application 1		
8.	Arduino + carbon dioxide sensor	Principles		
		Specific application 1		
9.	Arduino + muscular activity sensors	Principles		
		Specific application 1		
10.	Arduino + hydrogen sensor	Principles		
		Specific application 1		
11.	Arduino + methane sensor	Principles		
		Specific application 1		
12.	Arduino + dust sensor	Principles		
		Specific application 1		
13.	Arduino + electric current intensity sensor	Principles		
		Specific application 1		
14.	Arduino + pressure sensor	Principles		
		Specific application 1		
15.	Arduino + bending sensor	Principles		
		Specific application 1		
16.	Arduino + infrared sensors	Principles		
		Ultrasonic sensors		
17.	Arduino + proximity sensor	Principles		
		Specific application 1		
18.	Arduino + light sensor	Principles		
		Specific application 1		
19.	Arduino + piezo element	Principles		
		Specific application 1		
20.	Arduino + light sensor (professional)	Principles		
		Specific application 1		
21.	Arduino + UV sensor	Principles		
		Specific application 1		

22.	Arduino + magnetic field sensor	Principles		
		Specific application 1		
23.	Arduino + Hall probe	Principles		
		Specific application 1		
24.	Arduino + Geiger counter	Principles		
		Specific application 1		
25.	Arduino + sound sensor (advanced microphone)	Principles		
		Specific application 1		
26.	Arduino + thermocouple	Principles		
		Specific application 1		
27.	Arduino + 3D printer			
28.	Arduino + voltage measurement			
29.	Arduino + current intensity measurement			
30.	Arduino + resistance measurement			
31.	Arduino + data acquisition (Python, + graphical representation)	Principles		
		Graphic tablet		
		Specific application 2		
32.	Arduino + data acquisition (Visual C#, + graphical representation)	Principles		
		Arduino + C#		
		Specific application 2		
33.	Arduino + data acquisition (LabView, + graphical representation)	Specific application 1		
		Specific application 2		
		Specific application 3		
34.	Arduino + data acquisition (other, + graphical representation)	Principles		
		Specific application 1		
35.	Arduino+ mini-sumo robot			
36.	Arduino+ robot	Obstacle Avoiding Robot		
37.	Arduino + independent car			
38.	Raspberry PI + sensors			
39.	Arduino + servomotors			
40.	Arduino + Peltier element for temperature control			
41.	Arduino + ethernet			

42.	Electromagnetic Stimulator			
43.	Arduino +load cell			
44.	Arduino + Ultrasonic Sensor			
45.	Arduino + low pass filter			
46.	Arduino + high pass filter			
47.	Arduino + ADC (analog to digital converter)			
48.	Arduino + band pass filter			
49.	Arduino + DAC (digital to analog converter)			
50.	Arduino + Ops Amps. (operational amplifiers)			
51.	Arduino + oscilloscope			
52.	Arduino + DDS (direct digital signal) function generator			
53.	Arduino + Wheatstone bridge (for resistance measurement)			
54.	Arduino + capacitance measurement			
55.	Arduino + inductance measurement			
56.	Electromagnetic stimulator			
57.	Processing	The program +Arduino		
		Graphics		
		Web cam image acquisition + processing		
		Internet image acquisition + processing		
58.	HTML+JavaScript+php +p5.js	+Arduino		
59.	Arduino + electric skateboard			
60.	Arduino + Bluetooth commanded car			

61.	Arduino + MORSE			
62.	Arduino Nano + parking sensors			
63.	Arduino Mega + 6 servomotors => Robotic arm			
64.	Sonar (Arduino + hc sr04)			
65.	anti-burglary alarm system + Arduino			
66.	To be completed at student proposal			

**Links:**

<http://www.robofun.ro>

<http://www.dx.com>

<https://www.banggood.com/>

<http://www.arduino.cc>

<https://processing.org>