	<p><u>School of Science and Technology</u></p> <p><u>Computer Science</u></p> <p><u>Embedded Systems Architecture</u></p> <p><i>Prof. Lorenzo Morresi</i></p>	<p>MSc in Computer Science (LM-18) A.A. 2019-2020</p>
<p>Project Title</p>	<p>Resistance value measurement</p>	<p>Sheet ARDUINO n 4</p>
<p><u>Description</u></p>	<p>Insert an unknown resistance between two Arduino pins to measure its value. An automatic choice of the measurement scale, allows to provide the final value on the "serial monitor". The range of measurable values goes from tens of ohms up to megaohms.</p>	
<p>Necessary materials_</p>	<p>1 ARDUINO UNO board 1 RESISTOR - 470 Ω 1 RESISTOR - 4,7 KΩ 1 RESISTOR - 47 KΩ 1 RESISTOR - 470 KΩ A variety of different resistances</p>	
<p><u>Sketch</u></p>	<pre>String unit=" ohm"; unsigned long Rzero; int VD; void setup() { Serial.begin(9600); } void loop() { pinMode(2,INPUT); pinMode(4,INPUT); pinMode(7,INPUT); pinMode(8,INPUT); Rzero = 470000; pinMode(2,OUTPUT); digitalWrite(2,HIGH); delay(100); VD = analogRead(A0); pinMode(2,INPUT);</pre>	

```
if (VD<105)
{
Rzero = 47000;
pinMode(4,OUTPUT);
digitalWrite(4,HIGH);
delay(100);
VD = analogRead(A0);
pinMode(4,INPUT);
}

if (VD<105)
{
Rzero = 4700;
pinMode(7,OUTPUT);
digitalWrite(7,HIGH);
delay(100);
VD = analogRead(A0);
pinMode(7,INPUT);
}

if (VD<105)
{
Rzero = 470;
pinMode(8,OUTPUT);
digitalWrite(8,HIGH);
delay(100);
VD = analogRead(A0);
pinMode(8,INPUT);
}

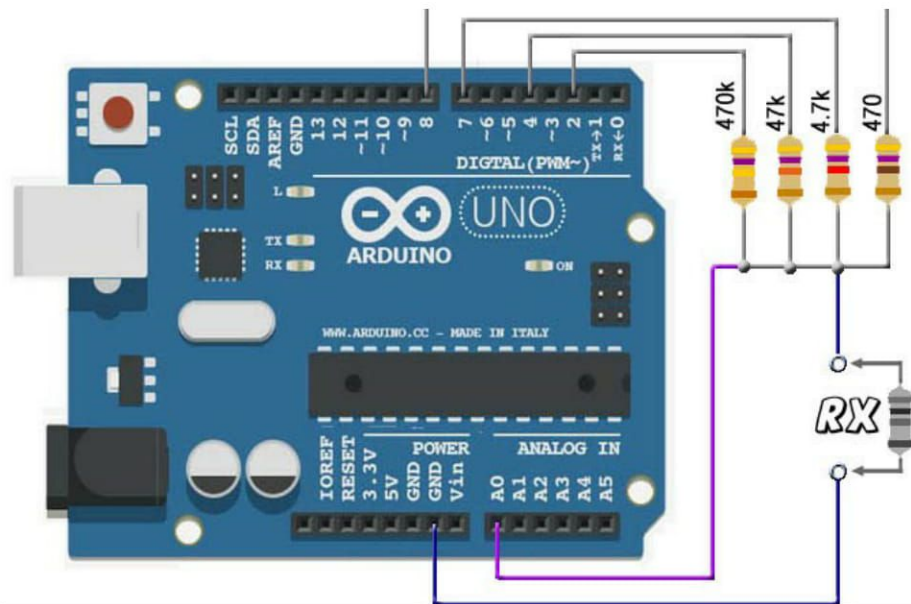
float RX = VD*Rzero/(1024-VD);
unit=" ohm";

if (RX>1000000)
{
RX = RX/1000000;
unit=" Mohm";
}
else
```

```
if (RX>10000)
{
RX = RX/1000;
unit=" Kohm";
}

if (VD>1020)
{
Serial.print("lettura non significativa");
Serial.println();
}
else
{
Serial.print(RX,2);
Serial.print(unit);
Serial.println();
}
delay(100);
}
```

Pictorial
/Schematic



Try to