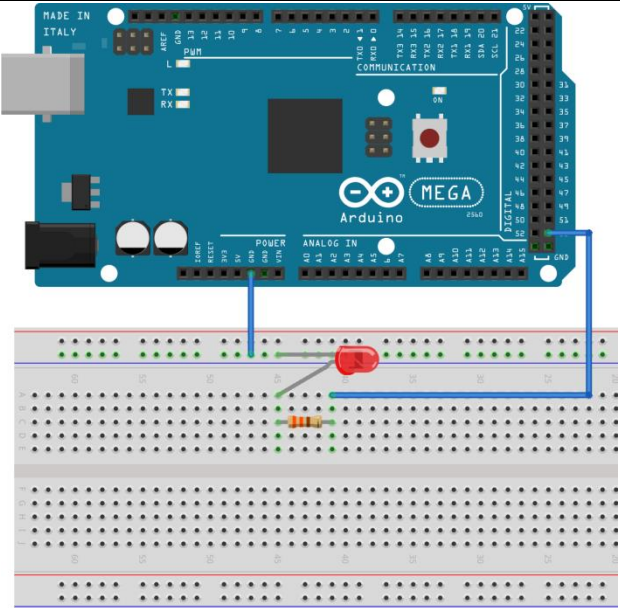
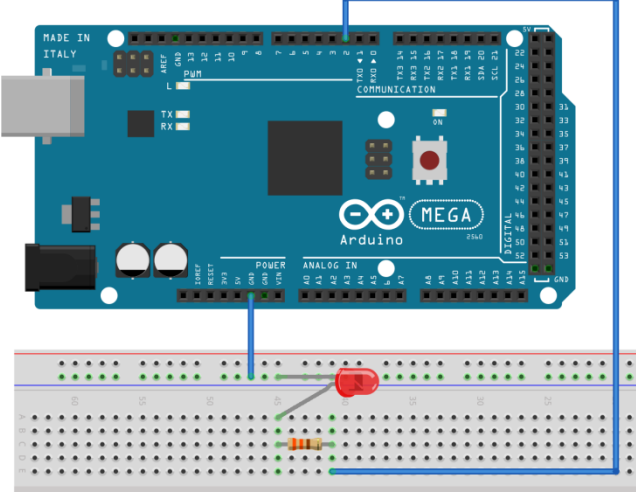
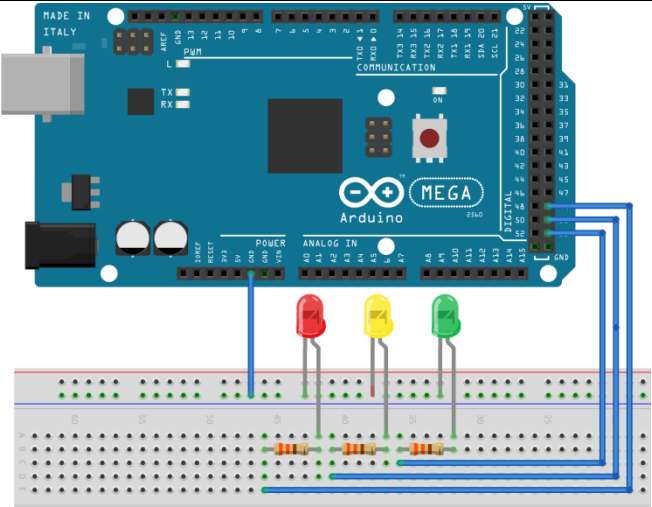
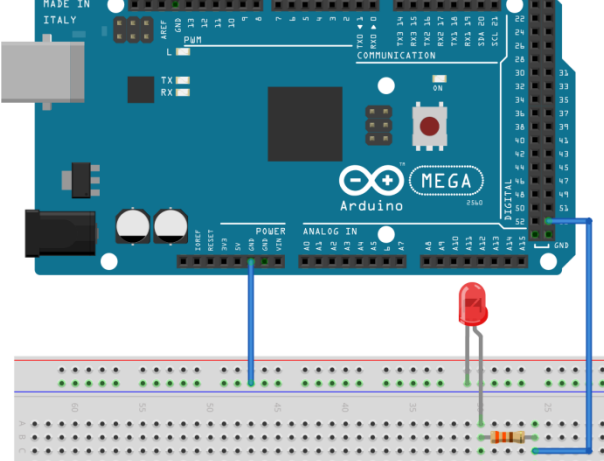



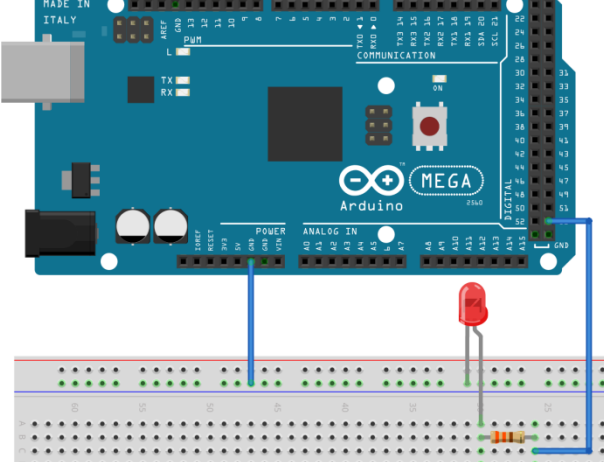
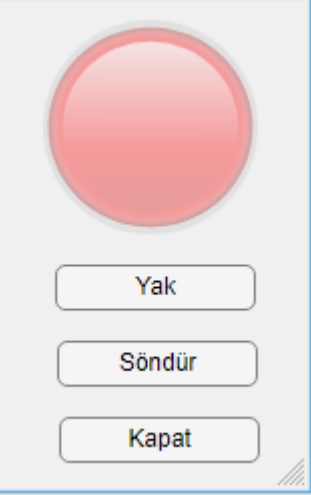
Uygulama	LED YAKIP SÖNDÜRME
Malzemeler	1 x 330 $\Omega$ direnç, 1 x LED
Devre şeması	
Kod	<pre>// LED yakıp söndürme void setup() {   pinMode(53,OUTPUT); }  void loop() {   digitalWrite(53,HIGH);   delay(1000);   digitalWrite(53,LOW);   delay(1000); }</pre>

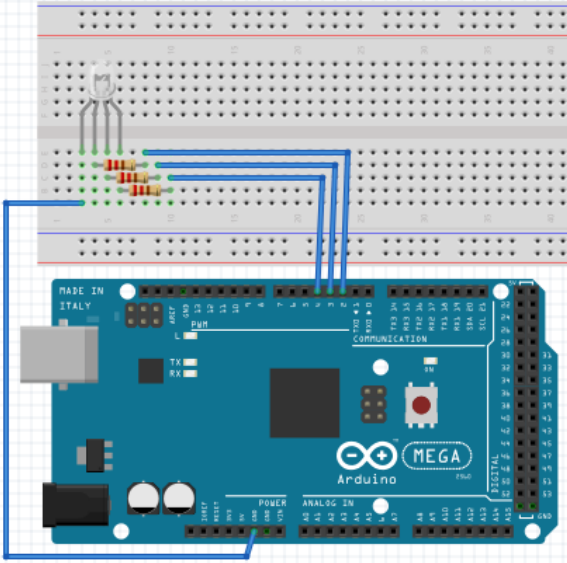

Uygulama	PWM İLE LED'İN IŞIK ŞİDDETİNİ DEĞİŞTİRME
Malzemeler	1 x 330 $\Omega$ direnç, 1 x LED
Devre şeması	
Kod	<pre>// PWM ile LED'in ışık şiddetini değiştirme void setup() {   pinMode(2,OUTPUT); }  void loop() {   for(int i=0;i&lt;256;i++)     { analogWrite(2,i); delay(50); } }</pre>

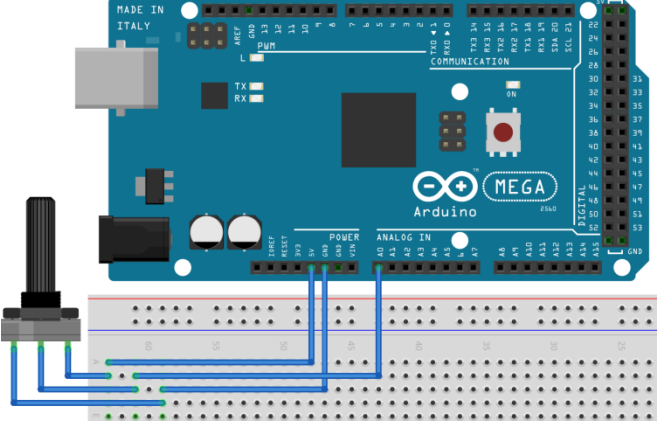
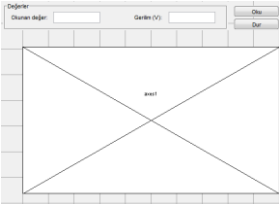
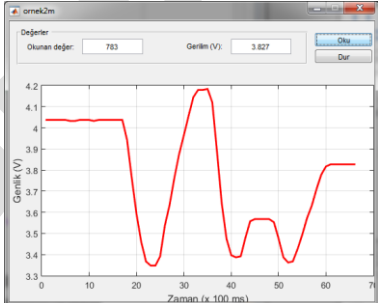
Uygulama	TRAFİK LAMBALARI
Malzemeler	3 x 330 $\Omega$ direnç, 3 x LED
Devre şeması	
Kod	<pre>// Trafik ışıkları void setup() {   pinMode(49,OUTPUT); pinMode(51,OUTPUT); pinMode(53,OUTPUT); }  void loop() {   digitalWrite(49,HIGH); delay(10000);   digitalWrite(49,LOW); digitalWrite(51,HIGH); delay(2000);   digitalWrite(51,LOW); digitalWrite(53,HIGH); delay(2000);   digitalWrite(53,LOW); digitalWrite(51,HIGH); delay(2000);   digitalWrite(51,LOW); }</pre>

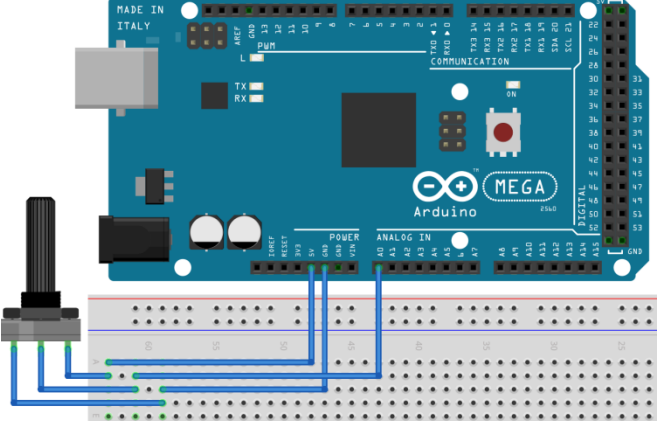
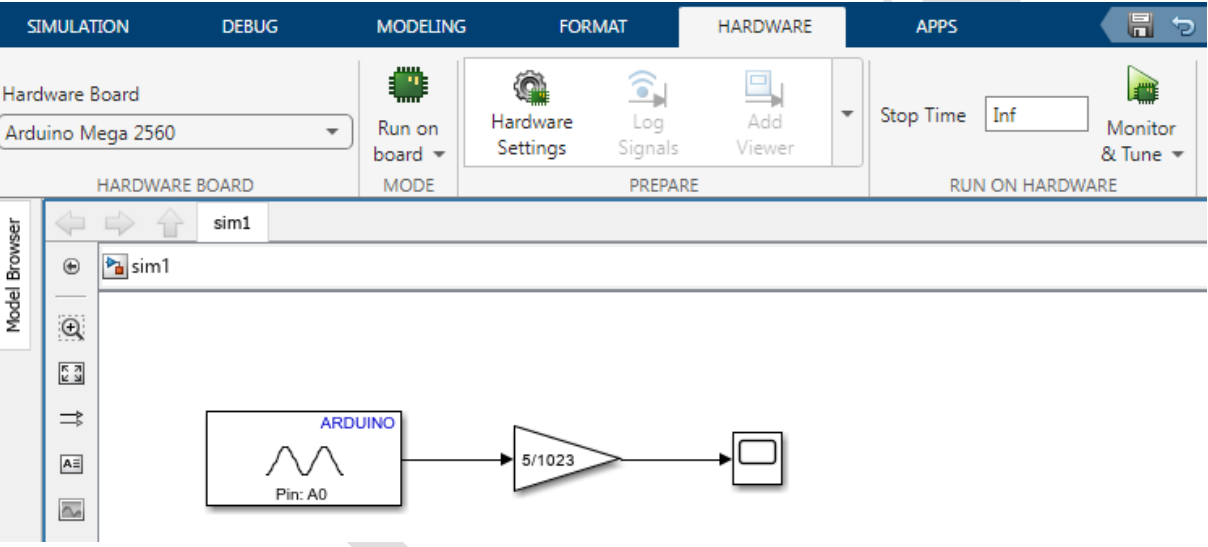
Uygulama	YÜRÜYEN IŞIKLAR
Malzemeler	4 x 330 $\Omega$ direnç, 4 x LED
Devre şeması	
Kod	<pre>// Yürüyen ışıklar byte pin[]={47,49,51,53}; int i,t=1000; void setup() {   for(i=0;i&lt;4;i++)     pinMode(pin[i],OUTPUT); }  void loop() {   for(i=0;i&lt;4;i++)     { digitalWrite(pin[i],HIGH); delay(t); digitalWrite(pin[i],LOW); }   for(i=2;i&gt;0;i--)     { digitalWrite(pin[i],HIGH); delay(t); digitalWrite(pin[i],LOW); } }</pre>

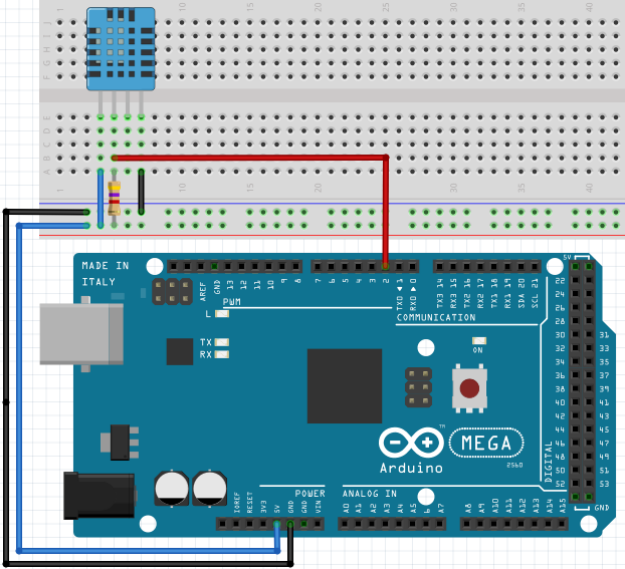
Uygulama	MATLAB ORTAMINDAN LED YAKIP SÖNDÜRME	
Malzemeler	1 x 330 $\Omega$ direnç 1 x LED	
Devre şeması		
Kod	<pre>// MATLAB - Arduino LED yak-söndür void setup() {   pinMode(53,OUTPUT);   Serial.begin(9600); }  void loop() {   if (Serial.available())   {     char x=Serial.read();     if (x=='A') digitalWrite(53,HIGH);     if (x=='K') digitalWrite(53,LOW); } }</pre>	
		<pre>function ornek1_OpeningFcn(hObject, eventdata, handles, varargin)  clear all global a a=serial('COM3','BaudRate',9600); fopen(a);  function pushbutton1_Callback(hObject, eventdata, handles)  global a fprintf(a,'A'); set(handles.uiapanell1,'BackgroundColor',[1 0 0]);  function pushbutton2_Callback(hObject, eventdata, handles)  global a fprintf(a,'K'); set(handles.uiapanell1,'BackgroundColor',[0.941 0.941 0.941]);  function pushbutton3_Callback(hObject, eventdata, handles)  global a fclose(a); delete(a); clear a; close;</pre>

Uygulama	MATLAB ORTAMINDAN LED YAKIP SÖNDÜRME	
Malzemeler	1 x 330 $\Omega$ direnç 1 x LED	
Devre şeması		
Kod	<pre>// MATLAB - Arduino LED yak-söndür void setup() {   pinMode(53,OUTPUT);   Serial.begin(9600); }  void loop() {   if (Serial.available())   {     char x=Serial.read();     if (x=='Y') digitalWrite(53,HIGH);     if (x=='S') digitalWrite(53,LOW); } }</pre>	
		<pre>function startupFcn(app)   global a   a=serialport("COM6",9600);   fopen(a);   end  function UIFigureCloseRequest(app, event)   delete(app)   end  function KapatButtonPushed(app, event)   global a   delete(a); clear a;   UIFigureCloseRequest(app, event)   end  function YakButtonPushed(app, event)   global a   fprintf(a,'Y');   app.Lamp.Visible="on";   end  function SndrButtonPushed(app, event)   global a   fprintf(a,'S');   app.Lamp.Visible="off";   end</pre>

Uygulama	RGB LED	
Malzemeler	3 x 220 Ω direnç 1 x RGB LED	
Devre şeması		
Kod	<pre>// MATLAB-Arduino RGB LED String ks,ys,ms; int k,y,m; void setup() {   pinMode(2,OUTPUT);   pinMode(3,OUTPUT);   pinMode(4,OUTPUT);   Serial.begin(9600); }  void loop() {   if (Serial.available()&gt;0)   { ks=Serial.readStringUntil(','); k=ks.toInt(); analogWrite(2,k);     ys=Serial.readStringUntil(','); y=ys.toInt(); analogWrite(3,y);     ms=Serial.readStringUntil(','); m=ms.toInt(); analogWrite(4,m);   } }</pre>	
		<pre>function ornek2_OpeningFcn(hObject, eventdata, handles, varargin)  global port port=serial('COM3','BaudRate',9600); fopen(port);  function pushbutton1_Callback(hObject, eventdata, handles)  global port r=str2num(get(handles.edit1,'String')); g=str2num(get(handles.edit2,'String')); b=str2num(get(handles.edit3,'String')); set(handles.uipanel2,'BackgroundColor',[r/255 g/255 b/255]); veri=strcat(num2str(r),',',num2str(g),',',num2str(b),','); fprintf(port,veri);  function pushbutton2_Callback(hObject, eventdata, handles)  global port fclose(port); delete(port); clear port; close;</pre>

Uygulama	MATLAB ORTAMINDAN GERÇEK ZAMANLI GERILIM OKUMA
Malzemeler	1 x 10 kΩ pot
Devre şeması	
Kod	<pre>// MATLAB - Arduino 10k potansiyometreden gerilim okuma int x=0; void setup() {   Serial.begin(9600); }  void loop() {   char y=Serial.read();   if (y=='B')     { x=analogRead(A0); Serial.println(x); delay(100); } }  function ornek2_OpeningFcn(hObject, eventdata, handles, varargin)  clear all global port global islem islem=1; port=serial('COM3','BaudRate',9600); fopen(port);  function pushbutton1_Callback(hObject, eventdata, handles)  global port global islem cla(handles.axes1); t=1;v=0; while (islem==1)   fprintf(port,'B');   a=fscanf(port,'%d');   set(handles.edit1,'String',num2str(a));   v(t)=5*a/1023;   set(handles.edit2,'String',num2str(v(t)));   drawnow();   plot(v,'r','LineWidth',2);   grid on; xlabel('Zaman (x 100 ms)');   ylabel('Genlik (V)');   t=t+1; pause(0.1); end  function pushbutton2_Callback(hObject, eventdata, handles)  global port global islem islem=0; fclose(port); delete(port); clear port; close;</pre> <div data-bbox="308 1003 587 1205" data-label="Figure">  </div> <div data-bbox="256 1507 635 1809" data-label="Figure">  </div>

Uygulama	MATLAB ORTAMINDAN GERÇEK ZAMANLI GERİLİM OKUMA
Malzemeler	1 x 10 kΩ pot
Devre şeması	
SIMULINK	

Uygulama	GERÇEK ZAMANLI SICAKLIK-NEM ÖLÇÜMÜ
Malzemeler	1 x DHT11 sıcaklık-nem sensörü 1 x 4.7 kΩ direnç
Devre şeması	
	<pre>// MATLAB - Arduino sıcaklık ve nem ölçme #include &lt;DHT11.h&gt; DHT11 sensor(2); void setup() {     Serial.begin(9600); } void loop() {     float nem,isi;     int veri=sensor.read(nem,isi);     Serial.print(nem,2);     Serial.print(",");     Serial.print(isi,2);     Serial.println();     delay(2000); } </pre>
Kod	<div data-bbox="598 1368 1109 1496" style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Arduino kartın bağlı olduğu port: COM3 <input type="button" value="Başla"/> <input type="button" value="Dur"/></p> <p>Sıcaklık (°C): 27.02      Nem (%): 36.00</p> </div> <pre>function pushbutton1_Callback(hObject, eventdata, handles)  global port; global basla; port=serial(get(handles.edit1,'String'),'BaudRate',9600); fopen(port); basla=1; while (basla==1)     a=fscanf(port,'%s'); b=strsplit(a,',');     set(handles.text4,'String',b(2)); set(handles.text5,'String',b(1));     pause(2); end  function pushbutton2_Callback(hObject, eventdata, handles)  global port; global basla; basla=0; fclose(port); delete(port); clear port; close; </pre>