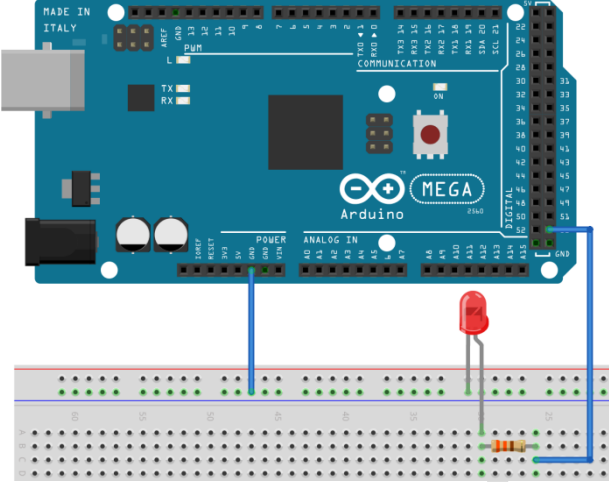

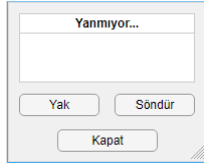


MATLAB + ARDUINO

UYGULAMALARI

Uygulama	MATLAB ORTAMINDAN LED YAKIP SÖNDÜRME
Malzemeler	1 x 330 Ω 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.uipanel1,'BackgroundColor',[1 0 0]); function pushbutton2_Callback(hObject, eventdata, handles) global a fprintf(a,'K'); set(handles.uipanel1,'BackgroundColor',[1 1 1]); function pushbutton3_Callback(hObject, eventdata, handles) global a fclose(a); delete(a); clear a; close;</pre>



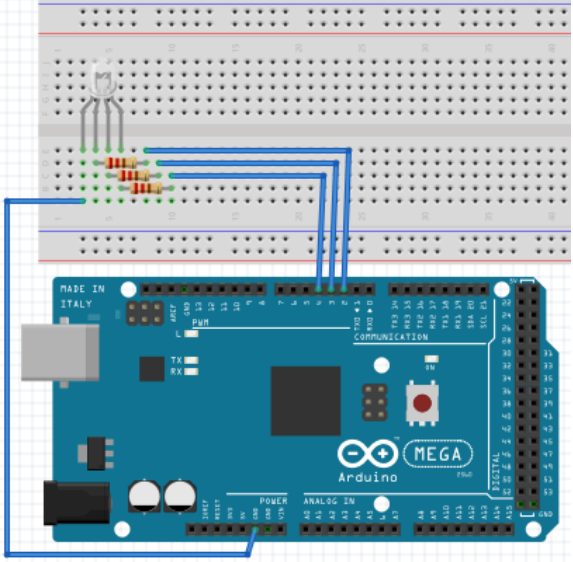

```
function startupFcn(app)
    clear all
    global port
    port=serial("COM5","BaudRate",9600);
    fopen(port);
end

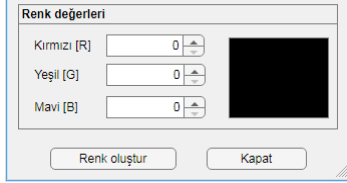
function UIFigureCloseRequest(app, event)
    global port
    delete(port);
    clear port;
    delete(app)
end

function KapatButtonPushed(app, event)
    UIFigureCloseRequest(app, event);
end

function YakButtonPushed(app, event)
    global port
    fprintf(port,'A');
    app.Panel.Title='Yanıyor...';
    app.Panel.BackgroundColor=[1 0 0];
end

function SndrButtonPushed(app, event)
    global port
    fprintf(port,'K');
    app.Panel.Title='Yanmıyor...';
    app.Panel.BackgroundColor=[1 1 1];
end
```

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()>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>



```
function startupFcn(app)
    clear all
    global port
    port=serial("COM3","BaudRate",9600);
    fopen(port);
end

function UIFigureCloseRequest(app, event)
    global port
    delete(port);
    clear port;
    delete(app)
end

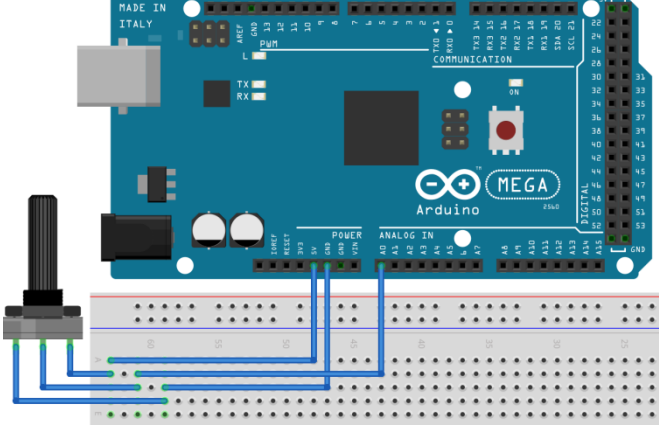
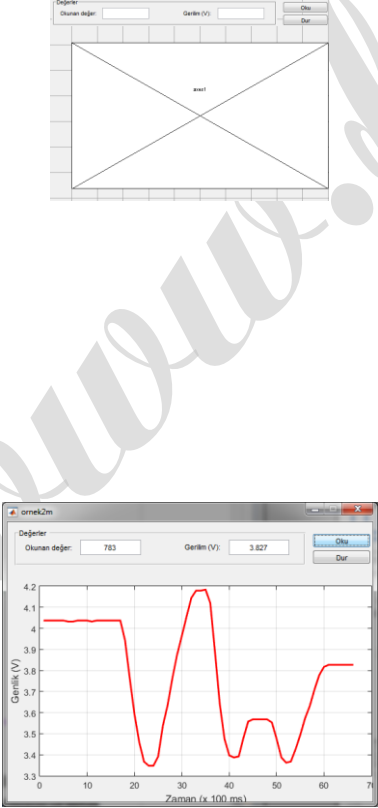
function KapatButtonPushed(app, event)
    UIFigureCloseRequest(app, event);
end

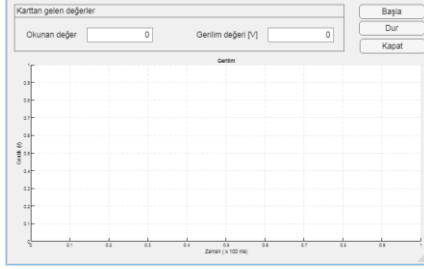
function RSpinnerValueChanged(app, event)
    kd=app.RSpinner.Value;
    yd=app.GSpinner.Value;
    md=app.BSpinner.Value;
    app.Panel.BackgroundColor=[kd/255 yd/255 md/255];
end

function GSpinnerValueChanged(app, event)
    kd=app.RSpinner.Value;
    yd=app.GSpinner.Value;
    md=app.BSpinner.Value;
    app.Panel.BackgroundColor=[kd/255 yd/255 md/255];
end

function BSpinnerValueChanged(app, event)
    kd=app.RSpinner.Value;
    yd=app.GSpinner.Value;
    md=app.BSpinner.Value;
    app.Panel.BackgroundColor=[kd/255 yd/255 md/255];
end

function RenkoluturButtonPushed(app, event)
    global port
    kd=app.RSpinner.Value;
    yd=app.GSpinner.Value;
    md=app.BSpinner.Value;
    giden=strcat(num2str(kd),',',num2str(yd),',',num2str(md),',');
    fprintf(port,giden);
end
```

Uygulama	MATLAB ORTAMINDAN GERÇEK ZAMANLI GERİLİM 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); } }</pre>	
		<pre>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>



```

function startupFcn(app)
    clear all
    global port islem
    islem=1; port=serial("COM3","BaudRate",9600);
    fopen(port);
end

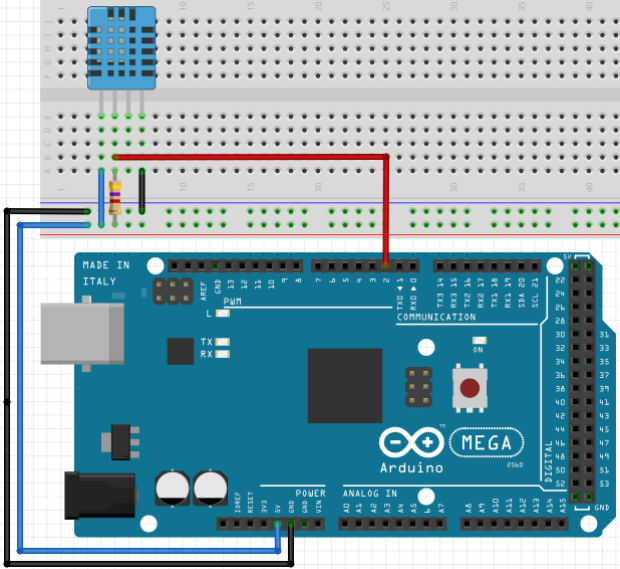
function UIFigureCloseRequest(app, event)
    global port
    delete(port);
    clear port;
    delete(app)
end

function DurButtonPushed(app, event)
    global islem
    islem=0;
end

function KapatButtonPushed(app, event)
    UIFigureCloseRequest(app, event)
end

function BalaButtonPushed(app, event)
    global port islem
    cla(app.UIAxes);
    t=1; v=0;
    while (islem==1)
        fprintf(port,'B');
        a=fscanf(port,'%d');
        app.OkunandeerEditField.Value=a;
        v(t)=5*a/1023;
        app.GerilimdeeriVEditField.Value=v(t);
        drawnow();
        plot(app.UIAxes,v,'r','LineWidth',2);
        t=t+1;
        pause(0.1);
    end
end
end

```

Uygulama	GERÇEK ZAMANLI SICAKLIK-NEM ÖLÇÜMÜ
Malzemeler	1 x DHT11 sıcaklık-nem sensörü 1 x 4.7 kΩ direnç
Devre şeması	
Kod	<pre>// MATLAB - Arduino sıcaklık ve nem ölçme #include <DHT11.h> 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> <div data-bbox="582 1391 1093 1518" style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">... Sıcaklık-Nem ölçümü ...</p> <p>Arduino kartın bağlı olduğu port: COM3 <input type="button" value="Başla"/> <input type="button" value="Dur"/></p> <p style="color: red;">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>