

Arduino and Simulink Workshop



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Agenda



Getting start with Arduino hardware



Example programme Arduino on
MATLAB



Example programme Arduino on
Simulink



Tutorial – Traffic light

Getting started

List of Components



To run this example
you will need the
following hardware:



Supported Arduino
board



USB cable



LED



220 Ohm resistor



Breadboard wires



Small breadboard
(recommended)

Blink the light on Arduino Uno

Read



`readDigitalPin (a, pin)`

Write

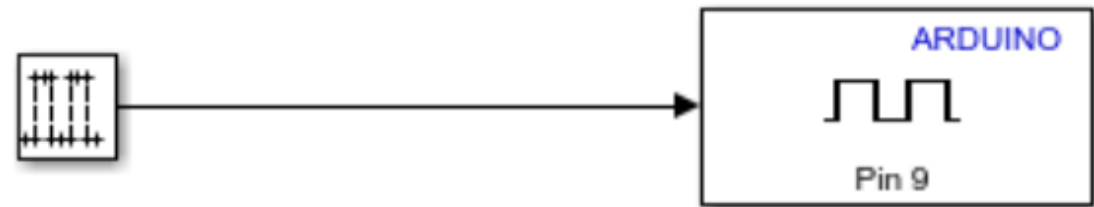
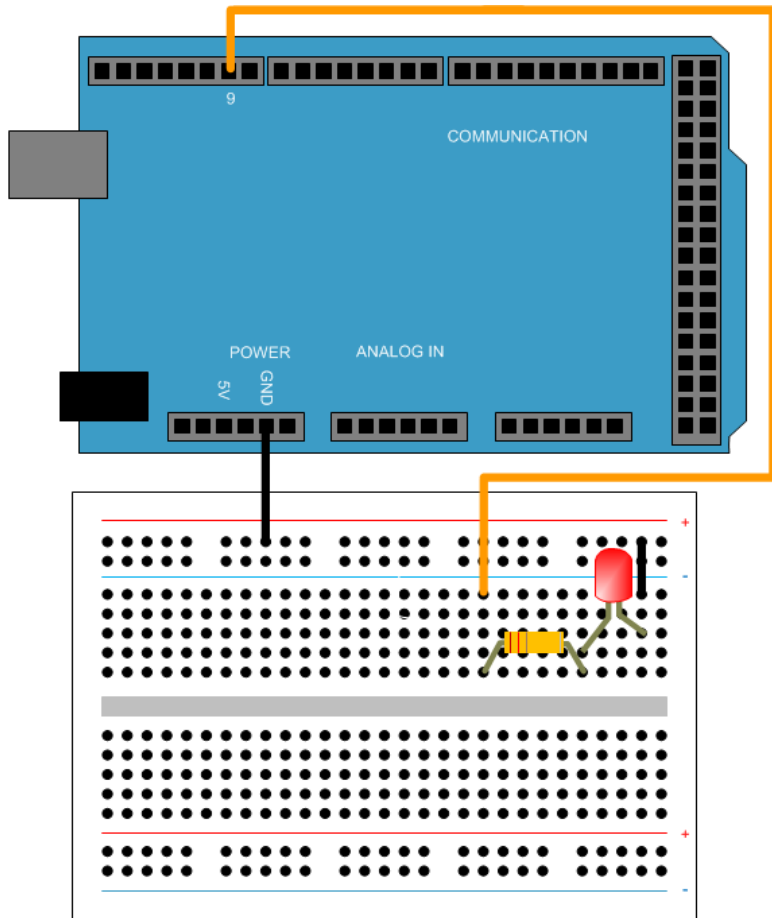


`wrightDigital (a, pout, signal)`

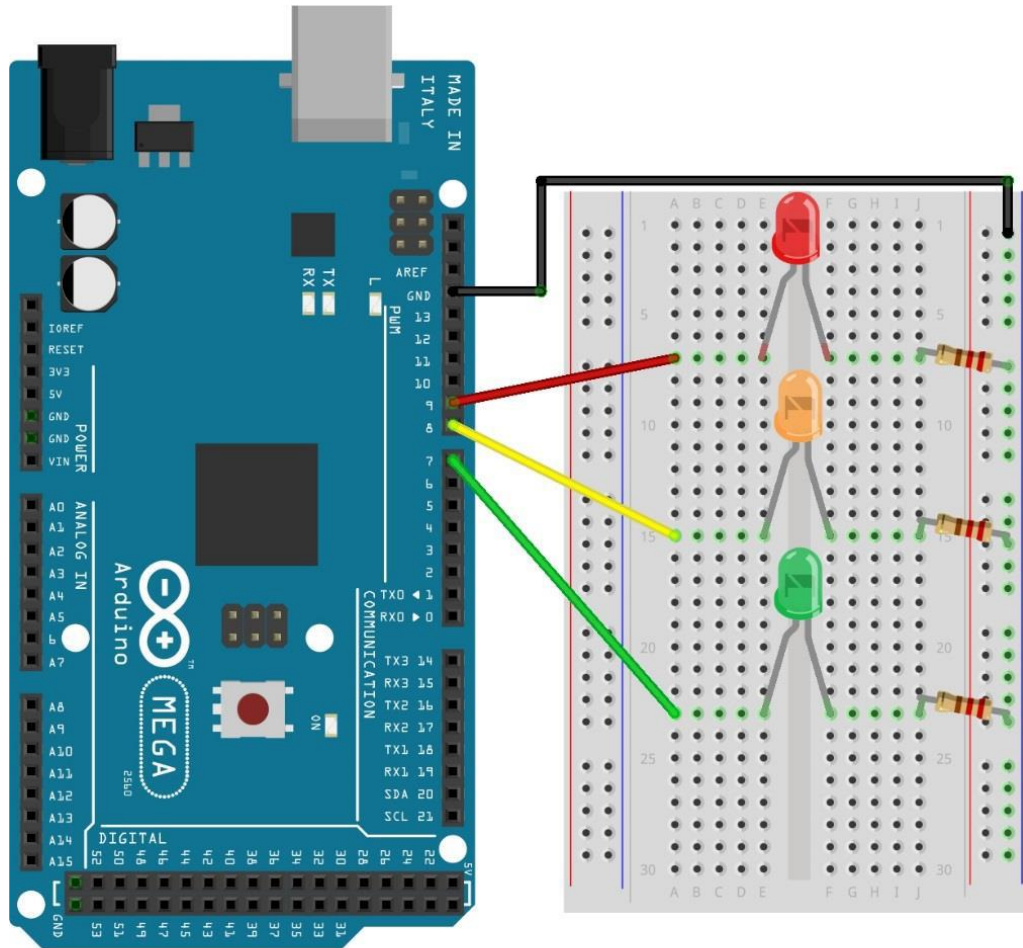
Play a tone on a piezo speaker

```
% PlayTone
pin = 9;
tune = 'eefggedccdee dd';
beats = [1 1 1 1 1 1 1 1 1 1 1 1 1 0.5 0.5 2];
notes = {'c','d','e','f','g',' '};
freqs = [262 294 330 349 392 0];
for ii = 1:length(tune)
    playTone(a,'D9',freqs(strcmp(tune(ii),notes)),0.2*beats(ii))
    pause(0.2*beats(ii))
end
```

Blink an LED using Simulink blocks



Traffic Light on Arduino using Stateflow



This project models a traffic light switching sequence, which automated as follows:

Red (5 sec)

Yellow (2 sec)

Green (5 sec)

The code initializes first by blinking all three LEDs three times, and then proceeds with the traffic light sequence.

A word cloud on a dark blue background. The central element is 'Q&A' in large, white, bold letters. Surrounding it are various question words in different colors (yellow, green, blue, orange) and sizes. The words include: 'What?', 'Where?', 'When?', 'How?', 'Who?', 'Why?', 'Where?', 'When?', 'How?', 'What?', 'Where?', 'When?', 'How?', 'Who?', 'Why?'. The words are arranged in a circular pattern around the center, with some appearing multiple times.



Thank you

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