

Arduino Bootcamp : Learning Through Projects

Joystick LED Matrix Game

Project Objectives

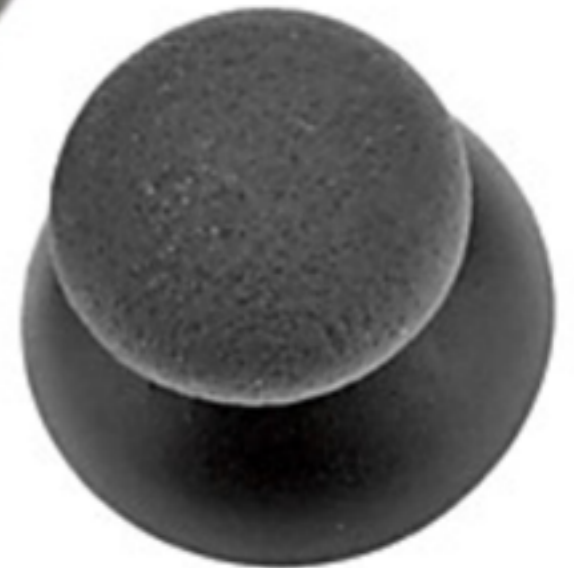
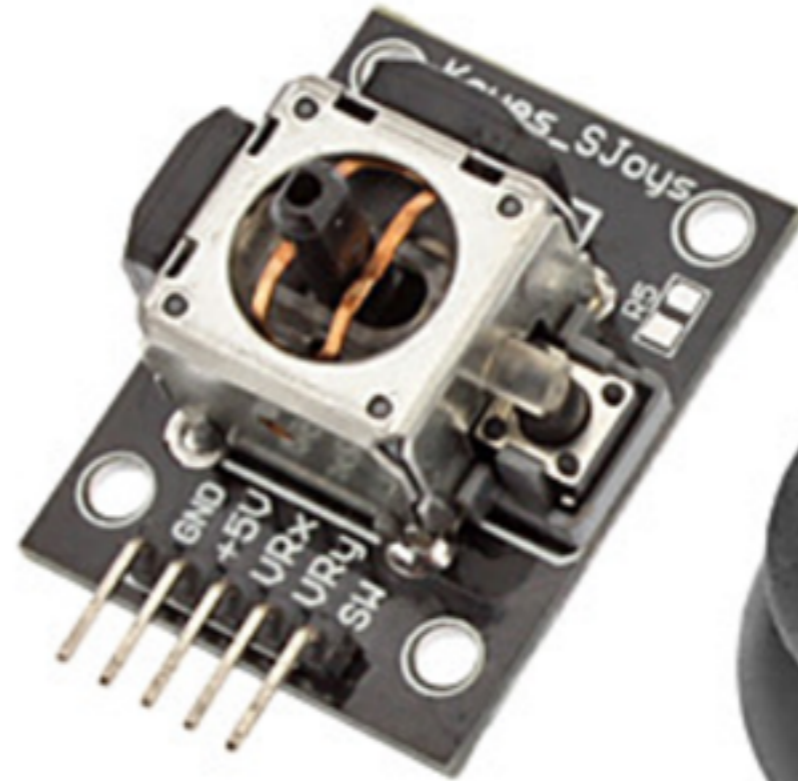
- In this project you will learn:
 - How to connect a thumb joystick in a circuit
 - How to take readings from a thumb joystick in code
 - How an 8 x 8 LED Matrix display works
 - Using a Max7219 Dot Matrix Module to control the 8 x 8 LED Matrix display

Parts

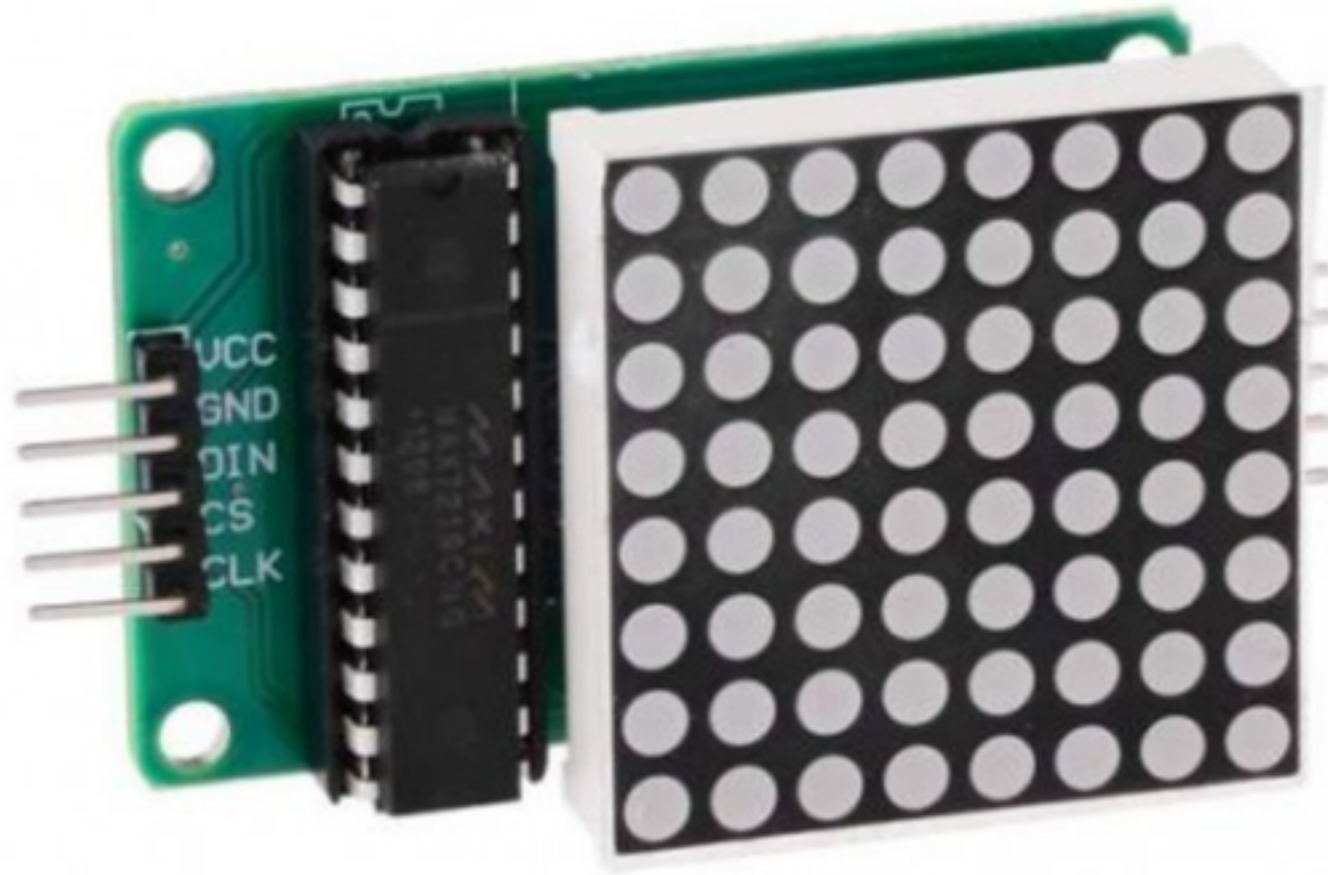
- Arduino Uno
- USB A-B cable
- Breadboard
- Thumb Joystick
- 8 × 8 LED Matrix
- Max 7219 Dot Matrix Module
- Connecting wires

Thumb Joystick

Pin	Purpose
GND	GND
+5V	5V
VRx	X-axis position
VRy	Y-axis position
SEL	Button press



Max7219 Dot Matrix Module

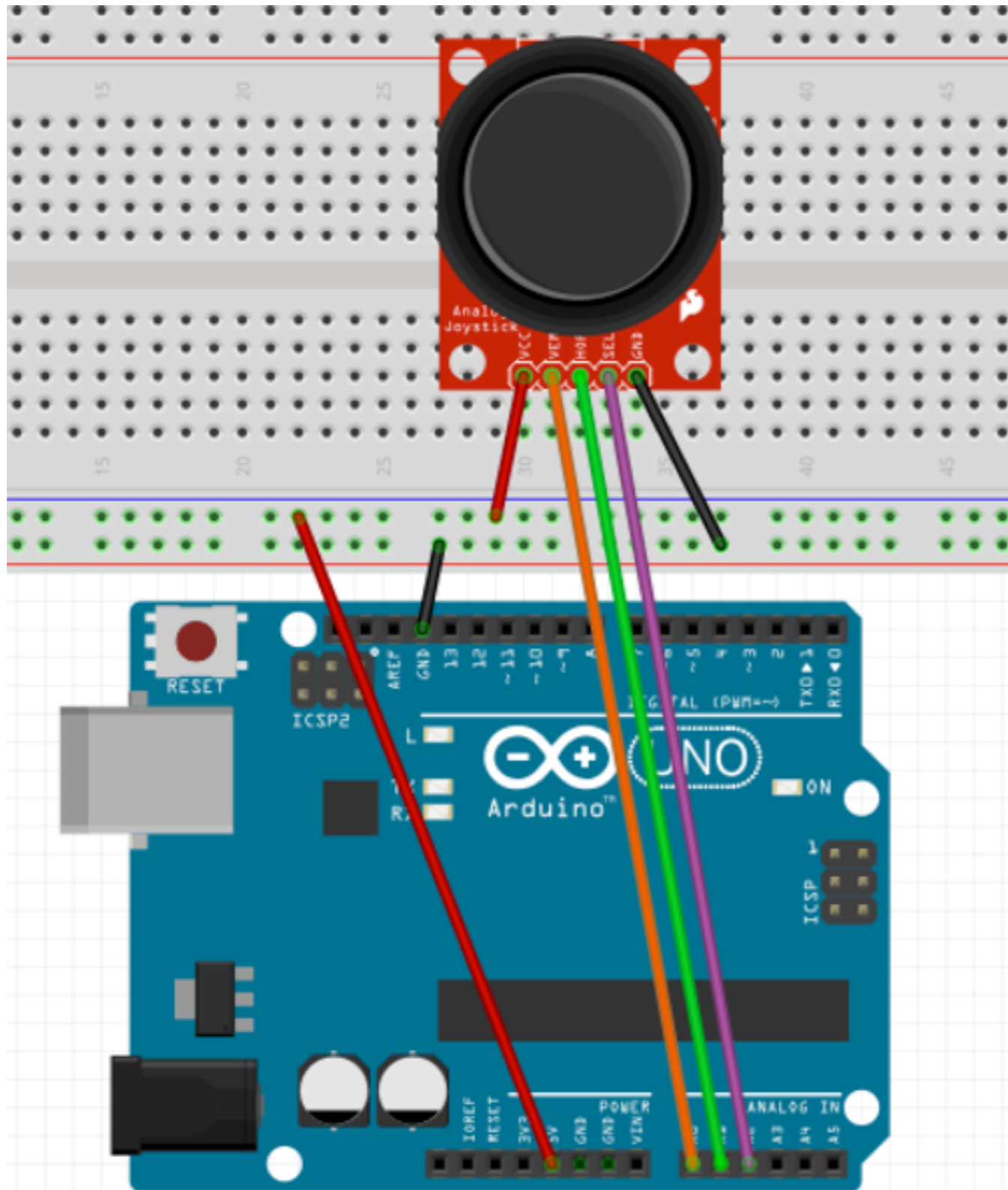


7219 Pin	Arduino Uno Pin
VCC	5V
GND	GND
DIN	11 (MOSI) - Master Out Slave In
CS	10 (Slave Select)
CLK	13 (SCK) - Serial Clock

SPI (Serial Peripheral Interface) Protocol

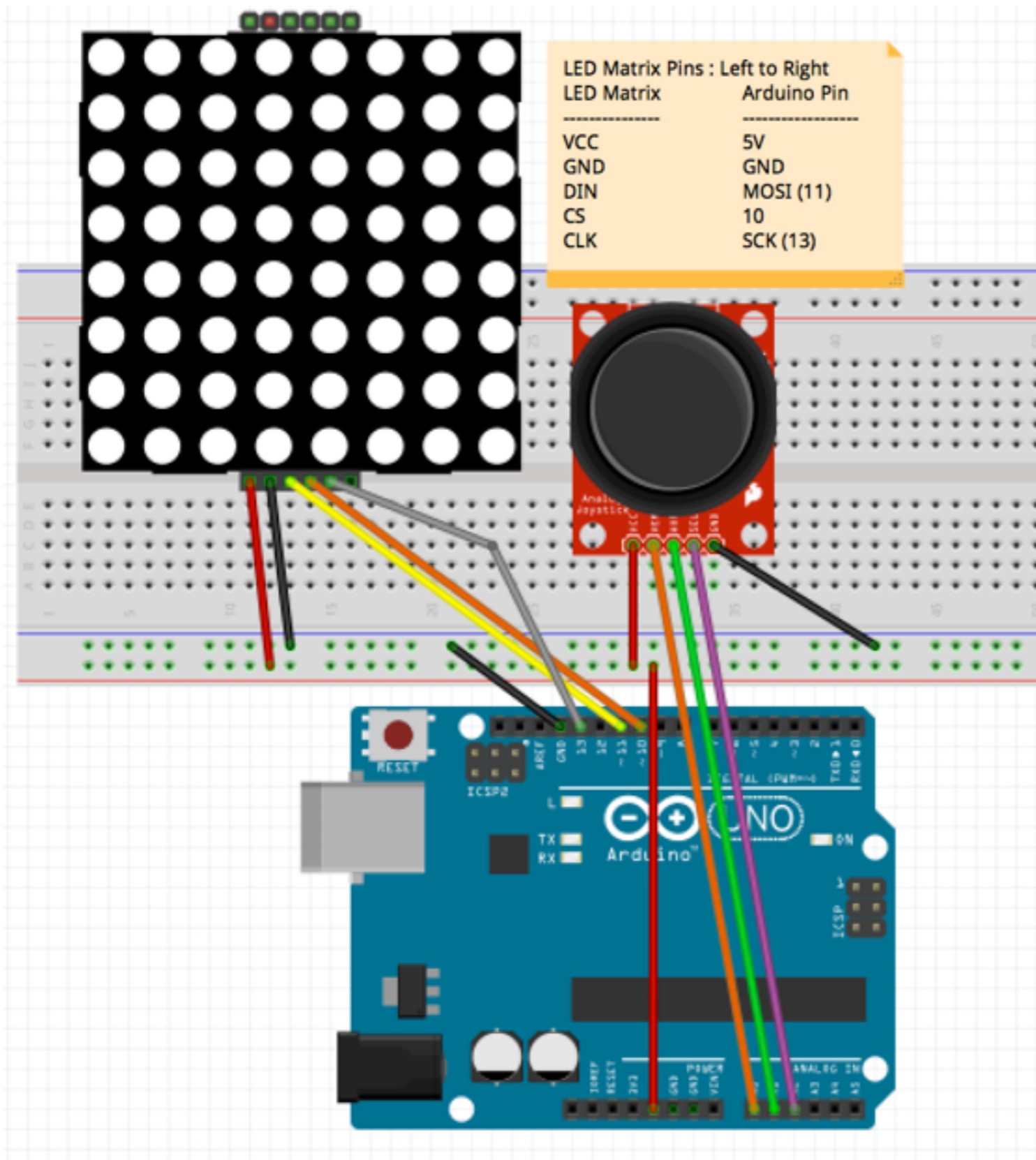
<https://www.arduino.cc/en/Reference/SPI>

Circuit Diagram 1- Joystick Operation



Joystick Pin	Uno Pin
GND	GND
+5V	5V
VRx	A1
VRy	A0
SEL	A2

Circuit Diagram 2- Joystick LED Matrix Game



Joystick Pin	Uno Pin
GND	GND
+5V	5V
VRx	A1
VRy	A0
SEL	A2

Summary

- In this project you learnt:
 - How to connect a thumb joystick in a circuit
 - How to take positional readings from a thumb joystick
 - How the 8x8 LED Matrix can be controlled with the Max7219 module