# Setting up the Demo Board

Apply 5 volts and ground to the two indicated pads. (About 20mA is required, plus current through the pots if the tennis option is used). Connect the oscilloscope X, Y and ground to the indicated pads. Use short leads to connect to the oscilloscope, or use X10 probes. If you use X10 probes, make sure they are correctly compensated. Set the oscilloscope input to DC coupling. Some oscilloscopes have a short input time-constant in AC coupling that will distort the images. Most digital oscilloscopes do not work well in X-Y mode, so an analog oscilloscope is recommended. Connect the pads labeled W1 and L1 to GND via momentary switches (not included). You may wish to build your board into an external enclosure with additional features such as a power jack, power switch, indicator LED, and BNC jacks!
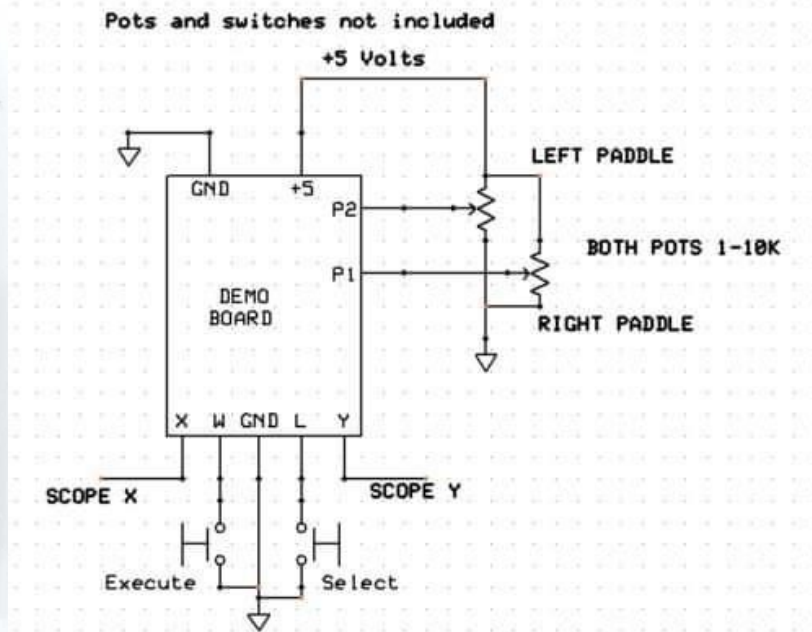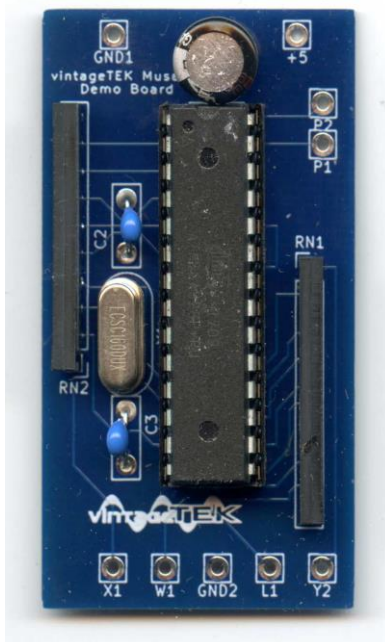
The ATmega328P chip supplied with your demo board has already been programmed. The menu provides the following display options: Logo, Wizard, 511, Logo & Wizard, Wizard & 511, All Three, Tennis, and VintageTek logo. The L switch selects a menu option, and the W switch executes. The selected mode will be remembered when power is removed and restored. To exit the current mode and return to the menu, press the L switch.

To play table tennis, connect two potentiometers (1K to 10K **linear**, not included) with wipers to the P1 (right paddle) and P2 (left paddle) and the outside connections of the pots to +5 and ground, as shown in the diagram.

The game starts with the ball in the center moving toward the right paddle. The paddles are drawn straight, but are slightly curved in effect. The angle at which the ball rebounds off the paddle depends on where it strikes the paddle. If the ball misses a paddle and hits a left or right wall, a point is scored for the opposite side and the game restarts with the ball in the middle, headed toward the side that scored the last point. As each side scores a point, its score is incremented, but once a score reaches 9, it does not increment. To restart the game and reset the score, cycle the power to the board.

More information about this demo board: https://vintagetek.org/vintagetek-demo-board/