# One Dimensional PONG!

The set contains the following

- The main system box, in an acrylic enclosure with an LED matrix display on the front face.

- 5V 2.5A DC Power Supply with international pin adaptors. **Use only this supply with the game. <u>Use of any other power supply may destroy the game, the LED strip and/or power supply</u>.**

- 4 metre addressable RGB LED strip. **The strip is very fragile and expensive to replace, be very careful not to twist or crush the strip and keep it wound on the supplied spool when not in use.**

- Two footswitches with cables and 3.5mm jack plugs

- Connector cable to attach the LED strip to the system box

- 3.5mm jack extension cable

The rear panel of the game is laid out as follows
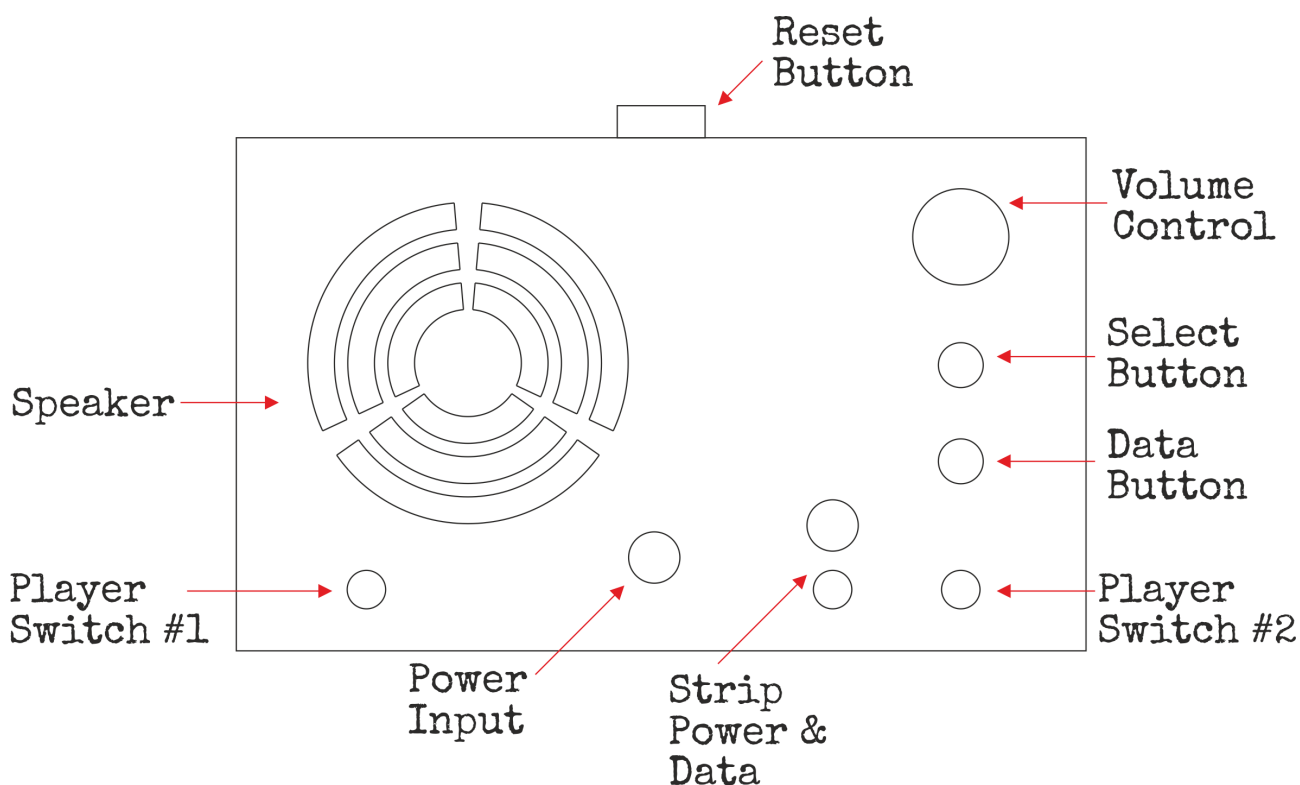
The set is designed to be set up with the system box at one end of the LED strip, with one switch close to the system box and the other switch at the far end of the strip. You can use the jack extension cable to connect the remote switch to the box.

If you prefer, you can use additional standard 3.5mm jack extension cables (i.e. Mono or stereo headphone extension) and 2.1mm DC jack extension cables, to change this configuration and perhaps place the control box at the midpoint of the strip. Note that the data communication to the strip might become unreliable (causing the strip to "glitch" or not light up at all) if the data cable to the strip is longer than 2-3 metres.

To set the game up

- Select a playing area which is at least 6 metres by 1 metre. Place the control box at one end of the playing area, where a mains electricity supply is available.

- Attach the 4 pin-JST connector at the end of the LED strip to that on the supplied cable. Now plug the other end of the cable into the Strip Power and Data sockets on the rear of the control unit.

- Plug a footswitch into the Player Switch #1 socket. Plug the other footswitch into the end of the 3.5mm jack extension cable and plug that in turn into the Player Switch #2 socket.

- Lay the strip flat along the playing area, and place the Player 2 footswitch at the far end of the strip. Tidy up the extension cable to avoid trip hazards

- Plug the power supply into the Power Input socket and switch on at the mains

- Enjoy!

To Play PONG

The idea of 1D pong is to press your footswitch to return the "ball" (a pulse of light which moves up and down the strip) to the opposing player. The challenge is that timing is crucial... if you press your switch too early or too late, you will miss the return and your opponent gets a point. The real kicker is that the ball increases in speed with every return, forever tending toward the point where a return is all but impossible – but who will miss first...?

As you play, you will probably find the game dynamic becomes more collaborative rather than competitive; how long can you keep that rally going? How fast can you get? As well as keeping track of score, the game tracks the length of a rally, and getting a high score on that is the real goal, which requires players to work together!

The winner is the first to reach a score of 5. When the game ends, press the Reset button on top of the unit to start again.

1D Pong is great game for children and adults (especially anebriated adults!) alike. The one-switch control mechanism makes it a suitable game for people with disabilities who may already own specialised switches that can be plugged into the game in place of the foot switches. The game has a series of player-specific "simplify" settings which can allow even the severely impaired to partake and have fun against any opponent.

Always keep in mind that the LED strip is a very fragile and expensive component of the game. Treat it with respect – avoid twisting, kinking, crushing, stretching or anything else bad. It is most resilient to accidental damage when it is laying completely flat and straight on a hard floor, away from passing feet. You could even mount it along a wall etc. Just be careful with it – a broken strip is very hard to fix and will probably cost you at least half what you paid for the game to get another one... You've been warned!

The Menu

The game has a menu system which can be accessed by pressing the "Select" button on the rear of the control box.

Press "Select" to move between settings. The first setting is the Game Type and the remaining settings depend on the selected game (each game type having different settings)

To view a given setting value, press the Data button. When the value is displayed, press Data again to increase it. If you hold the Data button for a second or two it will start to auto repeat. Once the setting reaches its maximum value it will wrap around to the mininum again. There is no "Decrease" button, so make sure you don't miss the value you want!

Once you have selected a required Data value press "Select" again to return to the menu. You must press "Select" to save the new value.

To apply all the new settings and start a new game you press the Reset button in the normal way (Make sure you have pressed "Select" after changing a value to save it before you hit reset) All the settings are saved while the power is off, and they remain in force until you change them again.

The order of menu items is

- **Game Type**
- (Game Specific Settings)
- **Strip Length**

The game types are
- **Pong** (The main event, as decribed above)
- **1 Player Pong** (coming soon)
- **Breakout**

The **Strip Length** setting allows you to select different strip lengths from 100 – 300 LEDs. The four metre strip supplied with the game has 240 LEDs.

When the Pong game type is selected, the following additional menu options are available:

Speed – The values 0-9 select different initial speeds of the ball, with 0 being slowest and 9 fastest. The default value is 5.

Acceleration – Values 0-9 select how much faster the ball gets each time it is hit, from 0 (do not accelerate) to 9 (mental)

Limit – The values 0-9 determine the maximum speed that the ball can reach during a rally, from 0 (pedestrian) to 9 (unlimited)

Simplify 1 / Simplify 2 – These values are design to give a specific ease of game advantage to one player over the other.

- 0 – No simplification
- 1 – Ball approaches player at 70% of true game rate
- 2 – Ball approaches player at 60% of true game rate
- 3 – Ball approaches player at 50% of true game rate
- 4 – Ball approaches player at 40% of true game rate. In addition, the player bat can be "re-extended" to hit the ball before it has fully retracted after a "miss".
- 5 – Ball approaches player at 30% of true game rate. In addition, the player bat can be "re-extended" to hit the ball before it has fully retracted after a "miss".
- 6 – Ball approaches player at 20% of true game rate. In addition, the player bat can be "re-extended" to hit the ball before it has fully retracted after a "miss".
- 7 – Ball approaches player at 10% of true game rate. In addition, the player bat can be "re-extended" to hit the ball before it has fully retracted after a "miss".
- 8 – There is no scaling of ball speed, but the player is able to hold the bat in an extended position where the ball can be returned. Essentially the player can win by simply keeping the switch pressed and the bat extended
- 9 – There is no scaling of ball speed, but the bat will automatically fire as the ball approaches if the player does not push the button.

Breakout
Last but not least! The 1D Breakout can be selected from the menu and is currently a work in progress.

In this game you must knock out all bricks of your opponents colour. Your ball can then travel to the opponents end of the strip and you win the game.

Each player has their own ball, which accelerates and must be returned in a the style of 1D pong. The longer you can keep your ball in play the faster you demolish your opponents wall. There is nothing collaborative about this game!