

-=[DRAFT]=-

Vectrex Lunar Lander Controller

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Background

Despite owning various computers and consoles since the 1980s I never owned a Vectrex, but I always knew I *would* own one at some point...

Fast forward to 2023 when I finally found one for sale not too far from my home and knew it was time to own this little piece of gaming history.

I quickly ordered a PiTrex as I wanted to play some original arcade vector games from my youth as they were intended, on a vector monitor.

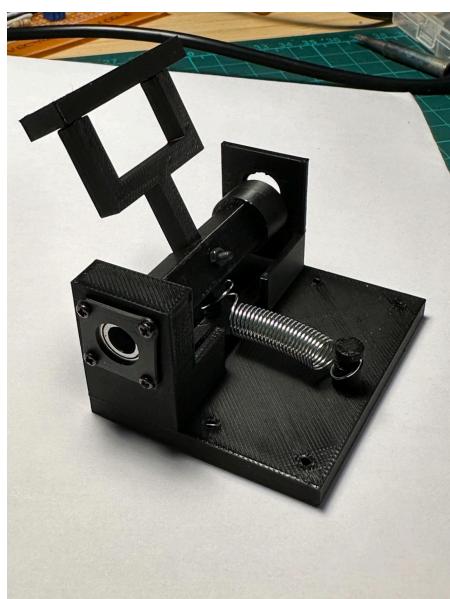
One of my earliest memories of arcade video games was Lunar Lander, which I played at every opportunity in the arcades. Now was my chance to play it again!

The problem I had was that it was good, but in order to be great needed an approximation of the original controller. This led me to embark on designing and making such a thing.

The design

The first thing I did was look at the [Lunar Lander arcade manual](#); specifically the throttle schematic.

I then experimented with several iterations of 3D model design (I use Fusion 360 if you're wondering) which resulted in this:



This throttle design formed the basis of my Lunar Lander controller, and allowed me to experiment with the necessary electrical side of things to bring it to life. As I developed the overall controller design I incorporated this throttle into the baseplate:

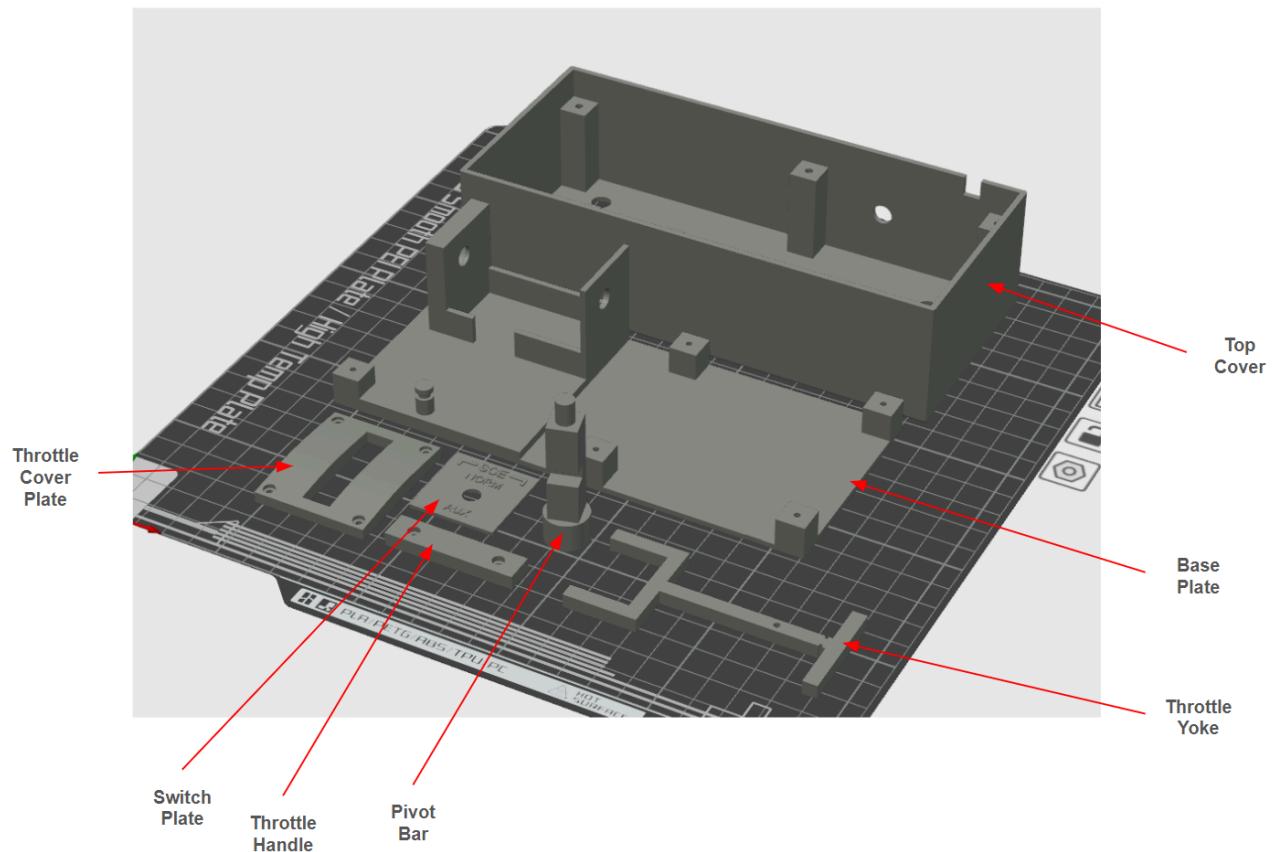


And eventually reached the current design (as of March 2024):



The components and features

As of March 2024 the [3D Model](#) includes the following components:



This model supports:

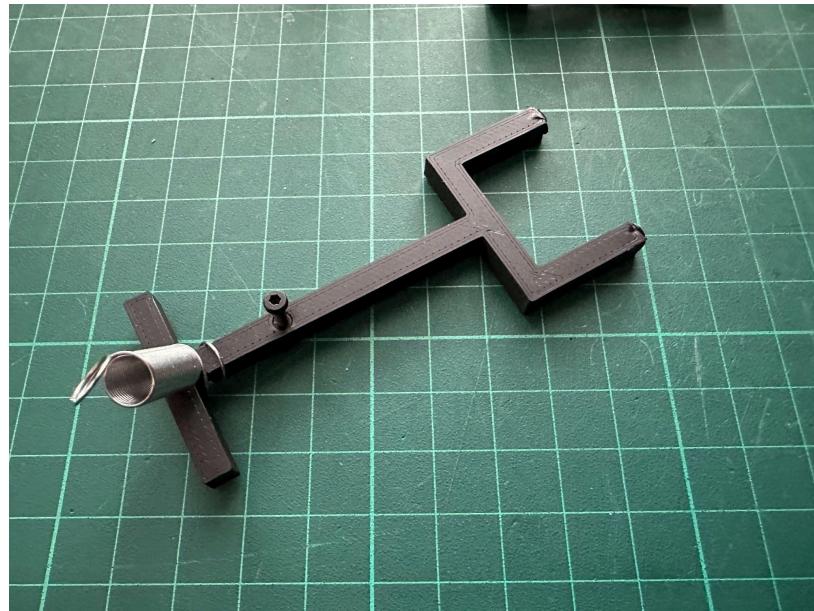
- Analogue Throttle
- Buttons switchable between digital X axis and buttons 1/2 (to support games that use X axis or buttons 1/2 for left/right)
- Buttons 3+4

What it doesn't support is digital Y axis buttons, so you'll need to swap out the controller for navigating menus etc if necessary (next version addresses this so look for an update in the near future).

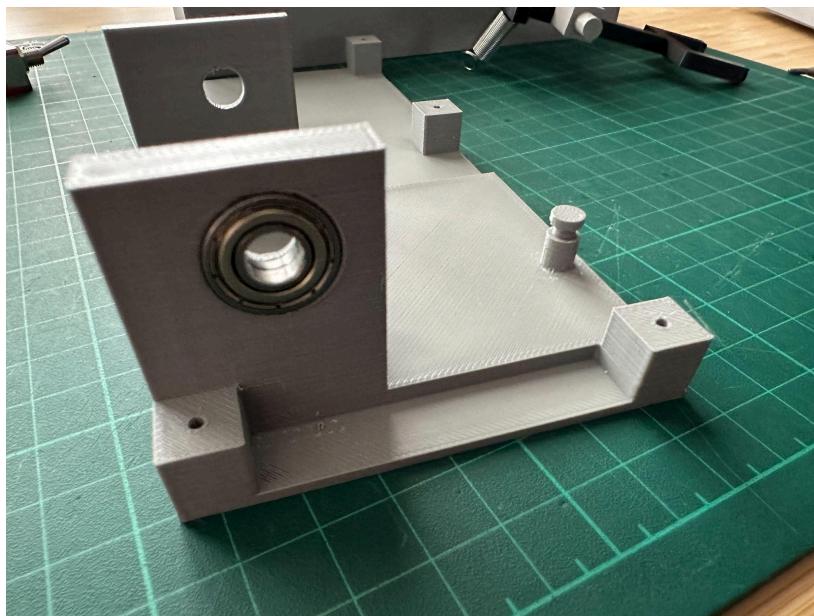
The configuration supported in this version allows you to use it for games that use joystick left/right or buttons 1/2 for left/right, for example Lunar Lander (PiTrex), Moon Lander and, if you're fortunate enough to own one Lunar Lander on the VecFever (which is by far the best version available on the Vectrex imho).

Assembly

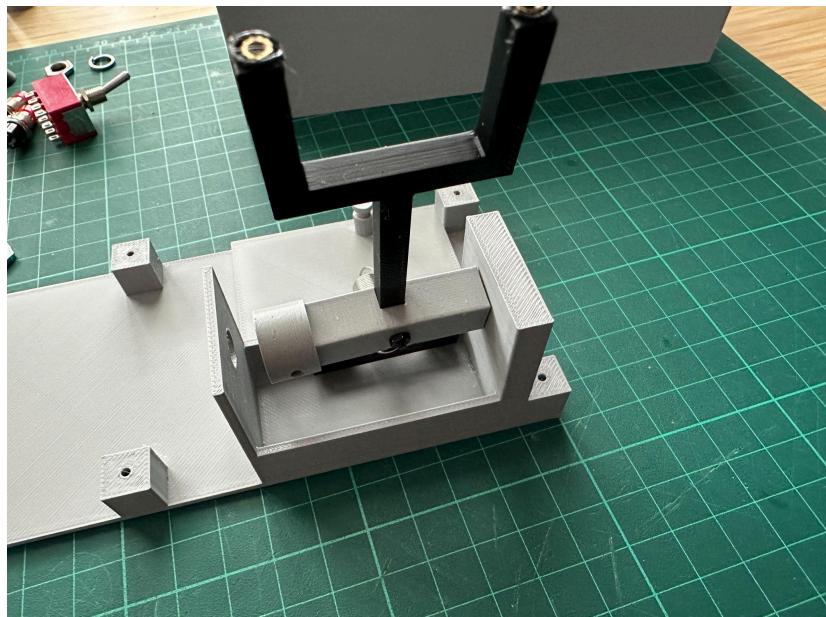
The yoke: We start by attaching a spring. This will return the yoke to it's zero throttle position upon release.



Throttle pivot bearing: Simply pushed into place and held in by friction.



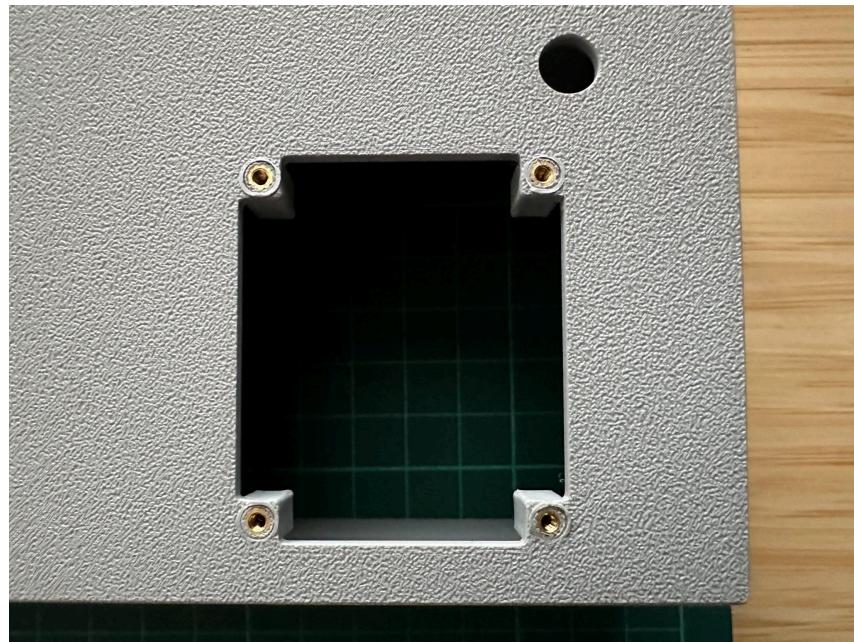
Instal the yoke/pivot bar assembly into the bearing. Yoke is fixed into the pivot bar with an M3 nut & bolt.



Insert brass heat-inset threads into the top cover.



And the top of the top-cover for the yoke cover plate to be fixed into.



Then install the 10k throttle potentiometer.

