FIGHT LIKE AN ANGEL DESKTOP ARCADE.

This is a raspberry pie based arcade system. But that's where the similarities to all other arcade systems that are out there ends. You see this was being built for my young cousin who is undergoing leukemia treatments. She is often in isolation due to her condition of not having an immune system and I thought it be fun to have something a little different to play on rather than her phone. If you downloaded these plans I would ask that a donation for whatever amount you would like to be made to the GoFundMe https://www.gofundme.com/fight-like-an-angel for her treatment.

I looked at the systems that were out there and all the cases even though there are full plans out there tended to be a bit substandard unless you are willing to pay a lot of money ($1000) and then you just have a generic looking machine with possibly decals of Mario Brothers on the side. My cousins name is Angel and she has a funding page campaign "Fight Like an Angel" so I thought this would be an awesome name for an arcade unit. So I decided to start from scratch, And like any project started by an engineer there is scope creep and an unwillingness to let something go until you have it right. I ordered several different arcade joystick kits and button arrangements from the Internet is and proceeded to do all the CAD drawings to be able to build the unit. I also got some graphics artists involved to help me in doing the layouts of the imagery of the cartoon angels that I wanted to see.

I decided to go with black melamine onto chipboard or OSB board rather than melamine on to MDF. One of the design considerations as I wanted it lighter to be able to transport it from the hospital and back to her house. In the MDF would be significantly heavier. Next I decided not to glue together or work with any fancy joints and just use the standard furniture connections that are very popular in IKEA and Sauder furniture. I took the extra step of finding one that has a plastic insert for OSB that would make it much stronger than the standard post mounting system. The sound system has a set of speakers

but it will work by headset plug-in and also has a Bluetooth interface for wireless headsets. I also decided to go with light up buttons that have more of a candy like look for this machine rather than the standard arcade buttons that would have a finger depression and be opaque. The monitor I used was a 19 inch monitor is very popular a few years ago but it is a VGA connection and I had to use a conversion connection to make it work with HDMI but it has a 4 to 3 ratio aspect which makes it more ideal for the older game systems that I am emulating.

Since I have an awful lot of CNC's lying around here I was able to start machining it straightaway. I ended up having to run the initial parts again to correct some whole placements but for the most part it went together very easily. After did a dry fit of the entire system we added the electronics and the raspberry pie to make sure that at least in its basic mode booted up. Then was all the tweaking to work with the monitor the emulators you are planning to use and we went about pulling in a quick load screen that showed video clips gave a quick entrance before you went into the games.

After certain everything would work and fit this we thought we started adding the finishing touches which was the edge banding that needed to go around the unit. I don't have a heat edge band are here so I went with the T slot variety which required me to do several the pieces on a router table and then trim the T slot at all the bends so it would have a more seamless look when going around the unit. The graphics go on next and this is a very difficult project because they're so large. Doing some tricks of spraying down water with a little bit a drop or two of soap and the solution allows you to be able to get the graphic back off if you do it incorrectly. Then you squeegee everything down when you are certain of the placement. Then goes the task of putting it all back together one final time and wrapping it up.

Actually, it turned out to be a huge endeavor much larger than I thought it would be but it was also fun and rewarding. Going in and do something like this is not for the faint of heart. Several people at the office that have been seeing this being built have decided they're also going to build one as Christmas gifts for their kids.

So let's get Started!

We are going to give you links for everything that was downloaded. Obviously, these links may not be current depending on when you downloaded this so there may be some variance, but I will talk about the specifics of what you should be looking for. We're going to assume that you have some basic skills for assembling furniture as well as some electronics and software. We are not providing any serious help for these projects. There is plenty online for the RetroPie Arcade software and the Roms these Plans are being provided as is and without warranty.

We use the raspberry pi kit. If you're looking to put this together use other ones make sure it's a pi 3 and I would have a 2.5 amp power supply and use Samsung ultra or EVO memory card and it so that it runs efficiently. The raspberry pi kit we purchase from and have the link below came preinstalled with all the software as well as the retro pie arcade which is the basis for this. The one thing it didn't have is

all of the ROMs (the actual games) which you have to download from the net because you can't actually sell these which is why they're not included.

You're going to need a monitor we used a Acer 19 inch monitor that looks roughly square it has a 4:3 ratio. You want power strip that goes inside the unit with a six or 12-foot power plug. And you're going to need a joystick button kit ours was purchased off Amazon. There are a lot of kits I would pay attention to the size of the joystick especially and make sure that you pay attention to the reviews because these kits vary wildly in capability. The kit we use has lighted lights rather than the typical arcade opaque buttons.

You need a small sheet of plexiglass you can get it 18 x 18 or 24 x 24 piece would work fine to cover the monitor. The plan shows 1/8-inch slot for 8th inch Plexiglas but in the actual V card files we use 1/4-inch piece and machine the edges down to fit into the 1/8-inch slots so either way will work for you. You're going to probably want to set of speakers preferably powered because the raspberry pi cannot provide enough power to run speakers that are not plugged into outlet. Even some speakers that are inside the monitor may not be strong enough.

For the case you are going to need at 4x4 sheet of three-quarter inch melamine covered both sides OSB board. We went with the OSB board because it was lighter versus the MDF covered melamine out there. If you don't have your own hot edge banding machine (of course we don't) we got about 20 feet of T slot edge banding black. The supplier for the OSB board had this for us. You're also going to need a slot cutter for your router table to be able to make the slot for the T slot edge banding. I don't want to actually tell you slot sizes because depending on the manufacturer of the T slot banding the center slot can vary

The cam shaft was designed with the plastic insert and the longer shaft. In the picture are 2 styles. If you are not buying from the link, make sure you are buying on like the one on the Left not the one on the right.

In designing this Required us to figure out a way to easily drill the site holes for where the furniture cam shafts connect to the nut. We finally decided on having the router bit Mark point where you would drill into the side of the OSB board. The scoring is visible from the inside of the cabinet but not on the finished side. We had it mark the side down exactly where you must place to drill bit to make the hole in the side. This makes it very easily drill in and hit the exact spot and go into the cam nuts hole.

The graphics we added are custom and created in house. They were specifically made for the project, but you can get ones that have Arcade themes online and though ebay.

The final part is the name plate at the top where the Fight Like and Angel is located. Most systems put this on a piece of plexiglass and either tape it in place or use a decorative edging. We went a different route and used ¾ inch HDPE and rounded the edges and then slotted it so it would be pressed in place for a seamless look

https://www.amazon.com/gp/product/B01LWVVMUI/ref=oh_aui_detailpage_o03_s00?ie=UTF8&psc=1 (rasp pi)

https://www.amazon.com/gp/product/B01N09SO20/ref=oh_aui_detailpage_o09_s01?ie=UTF8&psc=1 (buttons and Joysticks)

https://www.amazon.com/gp/product/B00VG0HMMC/ref=oh_aui_detailpage_o09_s01?ie=UTF8&psc=1 (furniture Cam 10 pack you need total of 22 so 3 packs)

http://www.rockler.com/blum-soft-close-110-blumotion-clip-top-inset-hinges-for-frameless-cabinets

Monitor 19 inch 4:3 preferred (ebay)

Walmart powered computer speakers (just placed in case).

4x4 osb melamine coated both sides (check local plywood retailer)

20 feet of T slot of edge banding.

Let us know how you are doing with ideas and links in our forum

http://www.nextwaveautomation.com/forums/