

MINI ARCADE FOR RASPBERRY

Complete guide.

2016



Complete guide for fabrication and assembly of Mini Arcade for any Raspberry by: **SIMPLEMENTENESTOR**

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Introduction

Why this cabinet?

As a amateur builder of Arcade Machines, I found some problems in typical machines, machines like the "originals".

"Original Arcade" are:

- **Big.** Only few people could have one of this machines in their houses without space problems.
- **Expensive.** You need lots of material, and this turn the machine really expensive.
- **Difficult to build.** For make the "typical salon arcade" you need many tools, which rarely anybody have.



For all this reasons I build this arcade. My "Mini-Arcade" solves this problems and add more interesting aspects.

This are the main characteristics of "Mini-Arcade" are:

- **Small.** The machine has the minimum sizes for be comfortable and allow to install a 10" screen in 16:10 or 16:9 format.
- **Easy to do.** You don't need to cut "hard" wood, or do difficult cuts. All the fabrication process is easy to do, and you are able to do it with a few tools.
- **Great quality.** When the machine is assembled, it shows really great, and rigidity of the structure is very good.
- **Adaptable.** You can use this cabinet in every country or with any raspberry and with any screen size. Don't matter the electric voltage of you county, the type of raspberry or the screen you will use. You can adapt it easily.
- **Convenient.** You can accede to the Raspberry easily. It makes easy to load games o change the Sd card connected or add new wifi or Bluetooth USB.
- **Clean.** All the electric installation is situated in the same place. This makes an electrical installation really clean , without all kind of wires circuits around. Removing only 6 screws you can extract the support with all the electric supply.
- **Cheap.** All the material are quite cheap. You can build this machine for 150e apx. The material of the cabinet are cheap and easy to found. And the as "cpu" you will use a Raspberry, the cheapest Raspberry costs only 5€ and the most expensive 40€.



Cabinet

Manufacturing

Raw materials to acquire

- Approximately 1,2m² of 5mm thickness wood.
- 1,5m length of 13x13mm wood profile
- Plate of methacrylate 162 x 280.

Manufactured materials to acquire

- Screws 3x12 / 3x19.
- Bolts 2,5x10.
- Magnetic closure.
- Hinges.
- Wood glue.

Tools

- Keyhole saw.
- Drills & drill bits of different sizes.

Manufacture notes

- Some drawings have sizes with rounded by a circle, that's why this sizes are going to change depending on your Magnetic enclosure, your hinges or joypad.



Inventory

Body parts	QTY.		QTY.
Side Right	1	Screen Saver	1
Side Left	1	SuporScreen-1	2
Bottom 1	1	SuporScreen-1AD	1
Bottom 2	1	SuportScreen-2	4
Column Joypad	1	Top-Fan	1
Front Joypad	1	Screw .3x13	38
Guide-1	1	Screw .3x19	7
Guide-5	1	Bolt .M2.5x10	14
Joypad Panel	1	Nut M2.4	14
Marquee	1	Washer".5	6
PCB's Suport	1	Hinges	2
Rear-L	1	Closure	1
Rear-R	1		

Manufacturing Drawings List

P01	Left and right Sides
P02	Bottom 1 / Bottom 2 / Marque / Screen Suport / Top Fan
P03	Screen suport / Front joypad
P04	Bottom 1 / Bottom 2 / Marque / Screen Suport / Top Fan
P05	Rear L / Rear R / Pcb's Support
P06	Screen Saver
P07	Guide 6/ Guide 4 / Column Joypad

You can see the drawings in the manual appendix.



Assembly

Tools

-Screwdriver

Assembly notes

-You don't need to use wood glue for make the cabinet assembly. You only need it for make some parts, but if you are joining the cabinet and you will use glue, you can do it, excepting the next parts:

Bottom 1 and Bottom 2. This parts have to be free of glue because they should provide access to joypad (bottom1) and for extract PCB support (bottom2)

Let me repeat you, you don't have to use, use it only if you want, except in the indicated parts.

- Remember that when you do the Joypad Assembly you have to do the holes for pad fixation.

Assembly Drawings List

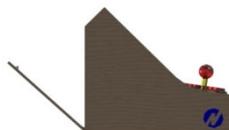
Auxiliary drawings

Ms01	General Layout
Ms02	Joypad & Screen Assembly

Mounting Drawings

M01	Body Assembly
M02	Joypad Assembly
M03	Screen Assembly
M04	Pcb's Suport & bottom
M05	Rear Covers

You can see the drawings in the manual appendix.



Cabinet Finish



Paint.

-The painting process could (if you want to paint it) could be after, or before the assembly. It's up to you. I personally prefer do it after the assembly, because the paint will cover some joins.

-If you want to vinyl the cabinet, is **REALLY IMPORTANT TO PAINT IT WITH LACQUER OR VARNISH THE WOOD**. If you try to apply the vinyl without paint, or painting it with spray paint, the vinyl won't be fixed enough and they will be take off.



Vinyl.

- Vinyl: The best moment for the vinyl installation is when the assembly is done, and the cabinet is painted. Normally is **better install the vinyl AFTER buttons** because the buttons cover the vinyl.

Note: You can find different vinyl designs in www.N3dSTOR.com if you aren't interested in design one.



Vinyl Example

Screen protector.

- Measure your screen size and position and paint the methacrylate screen saver.

You can get more information in the drawing P06



Electronic

Tools

- Soldering iron
- Tin
- Pliers
- Drill



Manufacture notes

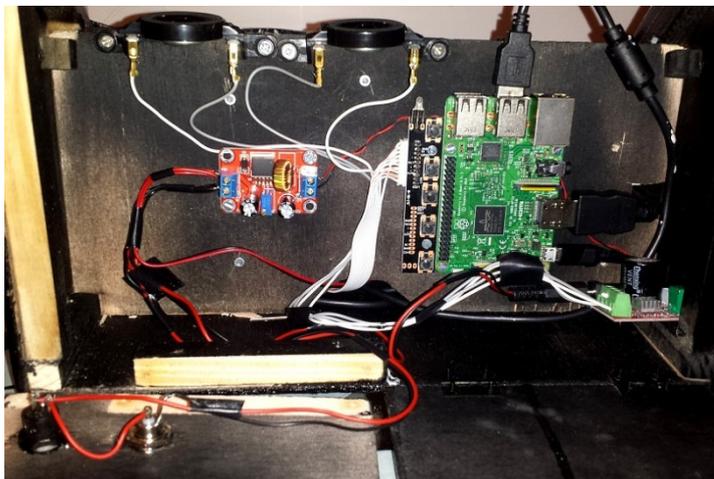
-This electronic diagram and this inventory are only ORIENTATIVE.

In my opinion it's a good example to follow, but you can do anything you want in PCB support in the cabinet. The cabinet design admit all type of electronics distributions.

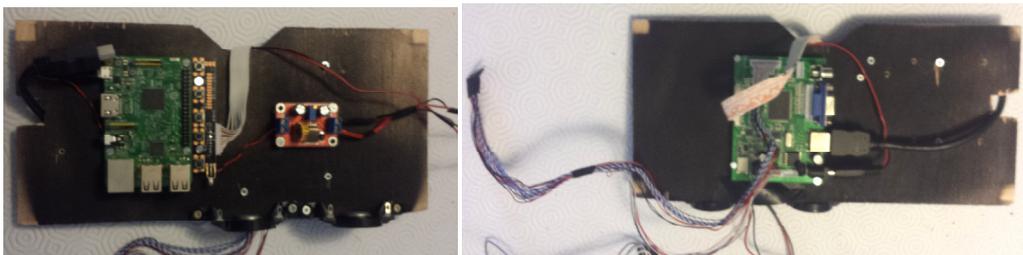
-For fix the PCB's I use an hexagonal spacer of nylon with his nuts and screws. I recommend it.

-Now is the moment of measure the diameter of the "power connector" and on/off switch and drill the position when you will place it.

- When your select your Raspebrry PI position, take in count the necessary separation for his connectors



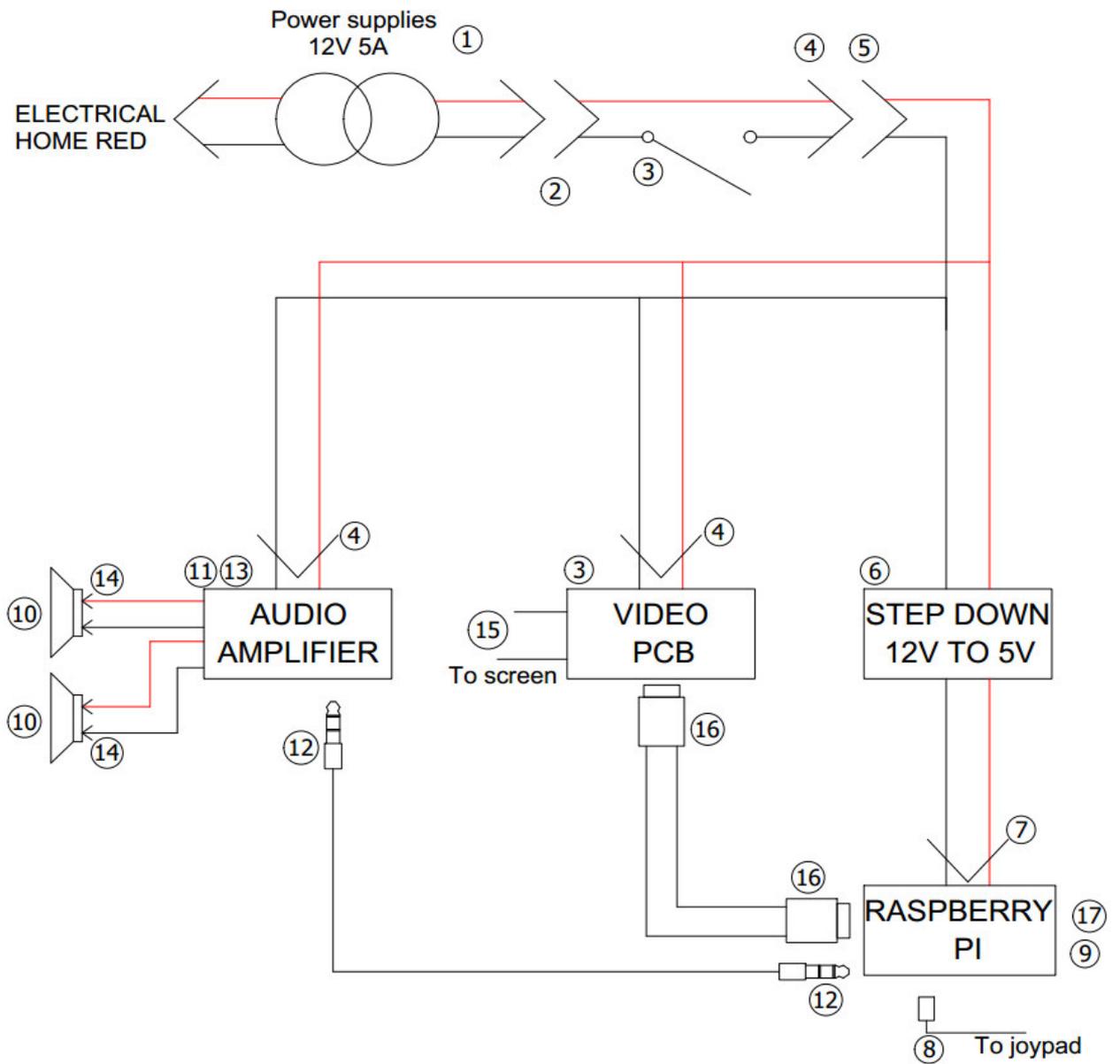
EXAMPLE OF PC'S SUPPORT POSITIONED WITH ELECTRIC INSTALATION



Inventory

Position	Power	QTY		Position	Audio	QTY.	
1	Transformer 220v-12DC 6A	1		10	Speakers	2	
2	Power Socket DC	1		11	Amplifier	1	
3	Switch power on-off	1		12	Audio Cable Jack-Jack	1	
4	Male power conector 5.2	411		13	Volume Knob	1	
5	Female power conector 5.2	2		14	Faston for Speakers	4	
6	Step down 12V-5V	1					
7	Power conector Micro-USB	1					
			Controller				
8	Joypad	1		15	Screen 10"	1	
				16	Cable HDMI	1	
			CPU				
17	Raspberry	1					
9	Sd	1					

Electric diagram



Appendix

Thanks to: Everybody who have read this manual, and especially if you want to contribute and send me your comment, I'll say thank you in advance, every comment it's welcome. email: simplementenestor@gmail.com

3D ASSEMBLY: If you are interested in 3d parts, you can find it in my webpage www.N3dSTOR.com

Thanks to every reader



A stylized, handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the bottom.

Néstor García



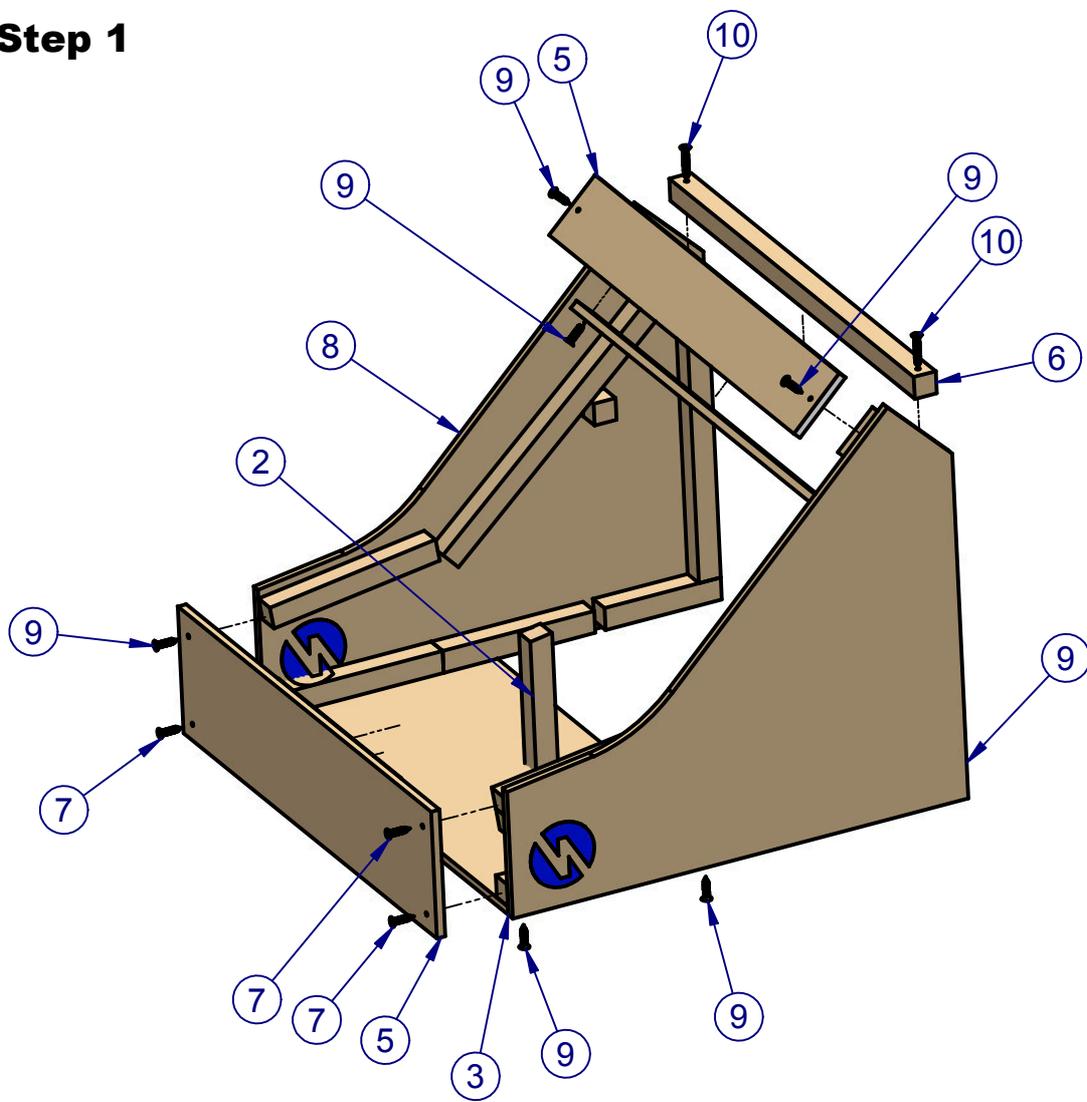
Photography Appendix



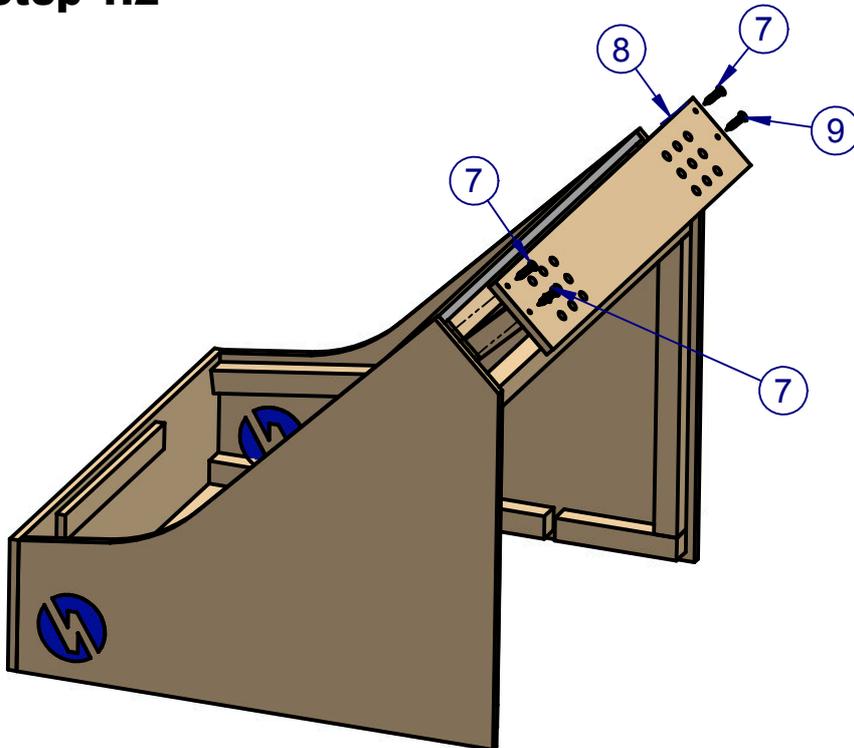
Drawings Appendix



Step 1



Step 1.2



Item number	Quantity	Name
1	1	Bottom1
2	1	Column_Joypad
3	1	Front_Joypad
4	1	Guide-5
5	1	Marquee
6	7	Screw.3x19
7	40	Screw3x13
8	1	Side_Left
9	1	Side_Right
10	1	Top-Fan

Step 1 -BODY ASSEMBLY-

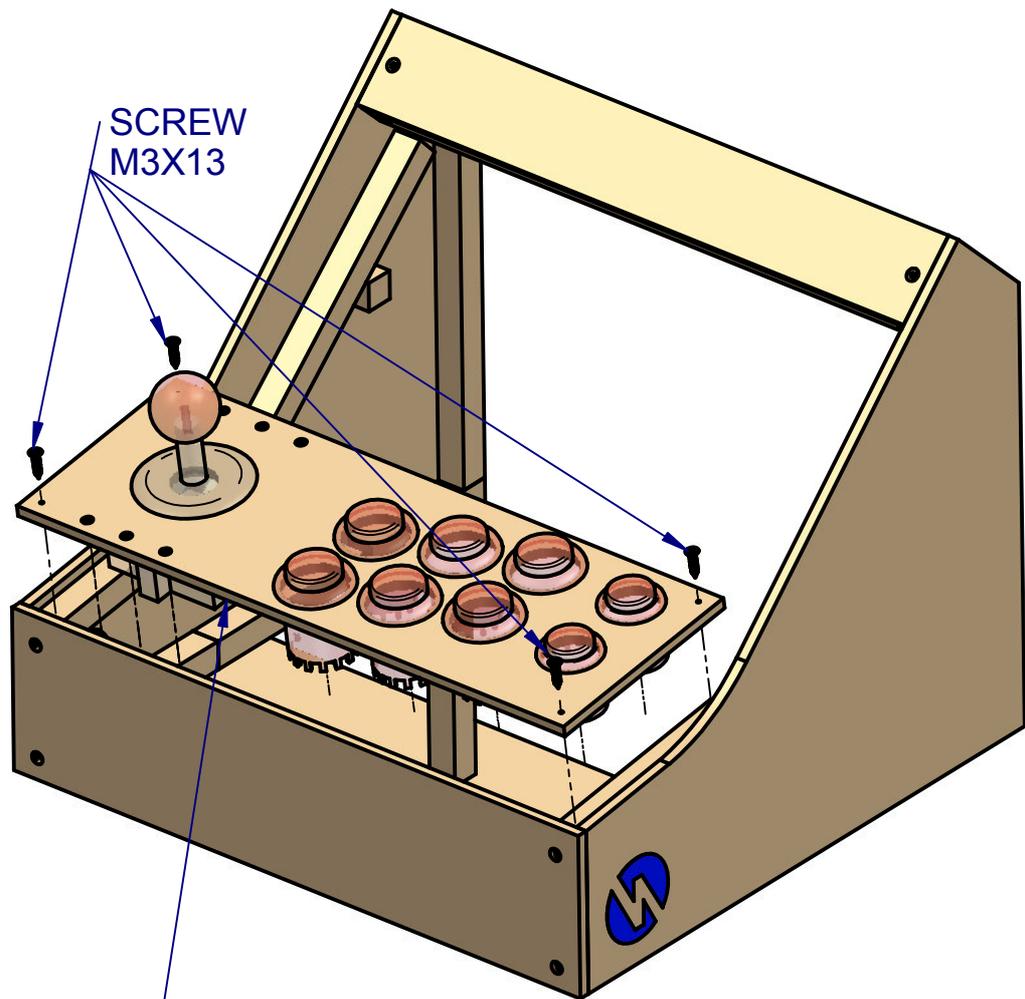
Number:
M01

Edition:
1

Author: *Nestor García*

Date: 01/08/16

by:
SIMPLEMENTENESTOR
www.N3dSTOR.com



SCREW
M3X13

JOYPAD ARCADE MOUNTING
DETAILS IN DRAWING MS02

Step 2 -JOYPAD ASSEMBLY-

Number: M02
Edition: 1

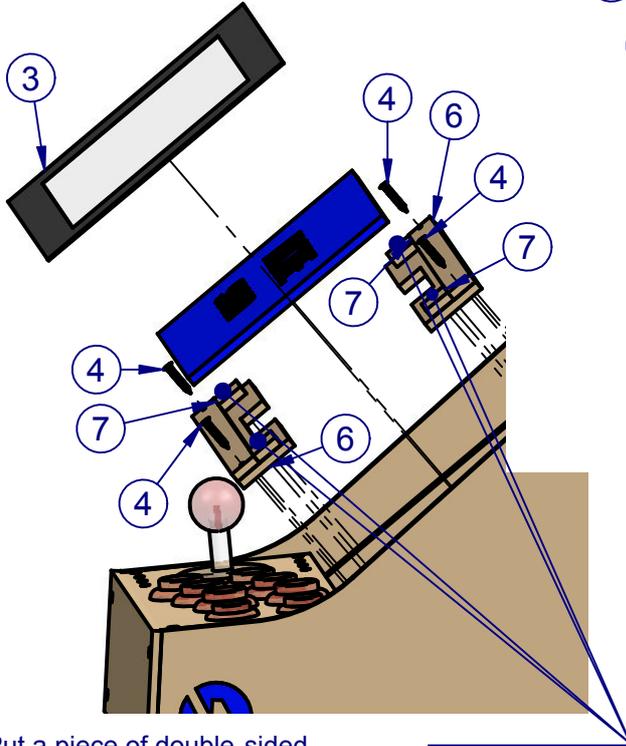
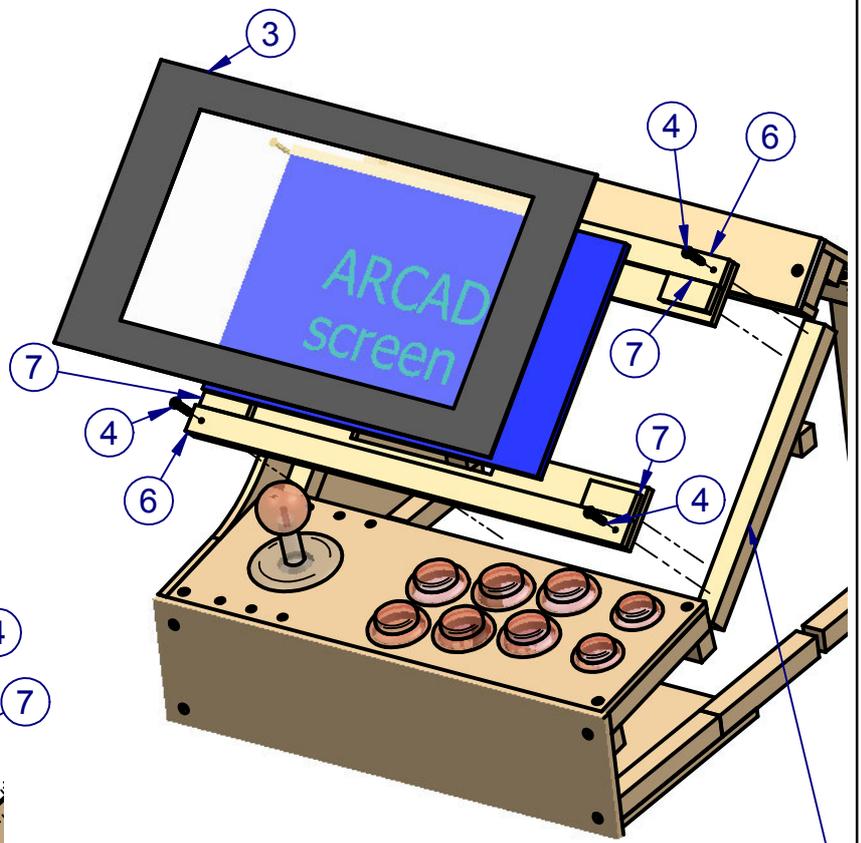
Date: 01/08/16

Author: *Nestor García*



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Number	Quantity	Part
1*	2	Bolt.M2.5x10
2*	2	Nut_M2,5
3	1	Screen-Saver
4	4	Screw.3x19
5*	2	Screw3x13
6	2	SuportScreen
7	4	SuportScreen-2



This guide ARE NOT DRILLED.
It's because the position of the item "SUPORTSCREEN-1"
will change depending the screen size and format.
Then you must drill it in your necessary position,
or thread the screw without drill.

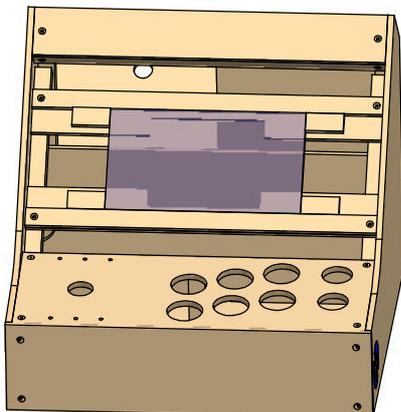
Put a piece of double-sided tape in this positions, for fix the screen saver with the support-screen

NOTE: SEE THE DRAWING MS02 FOR MOUNTING ADDITIONAL INFORMATION.

MOUNTING EXAMPLES FOR DIFFERENT SCREEN SIZES

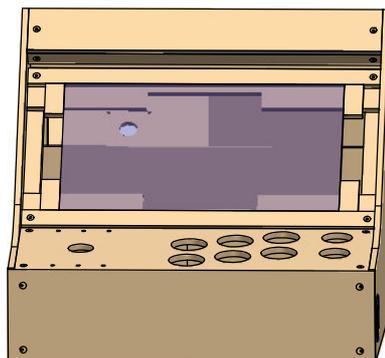
SCREEN 7"

FORMAT: 16:9



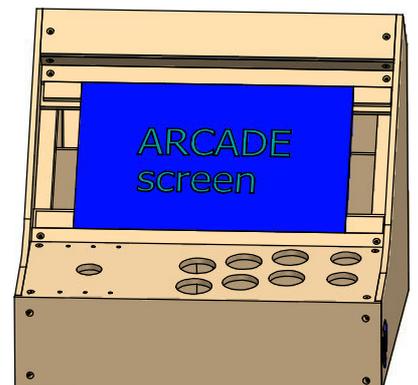
SCREEN 10"

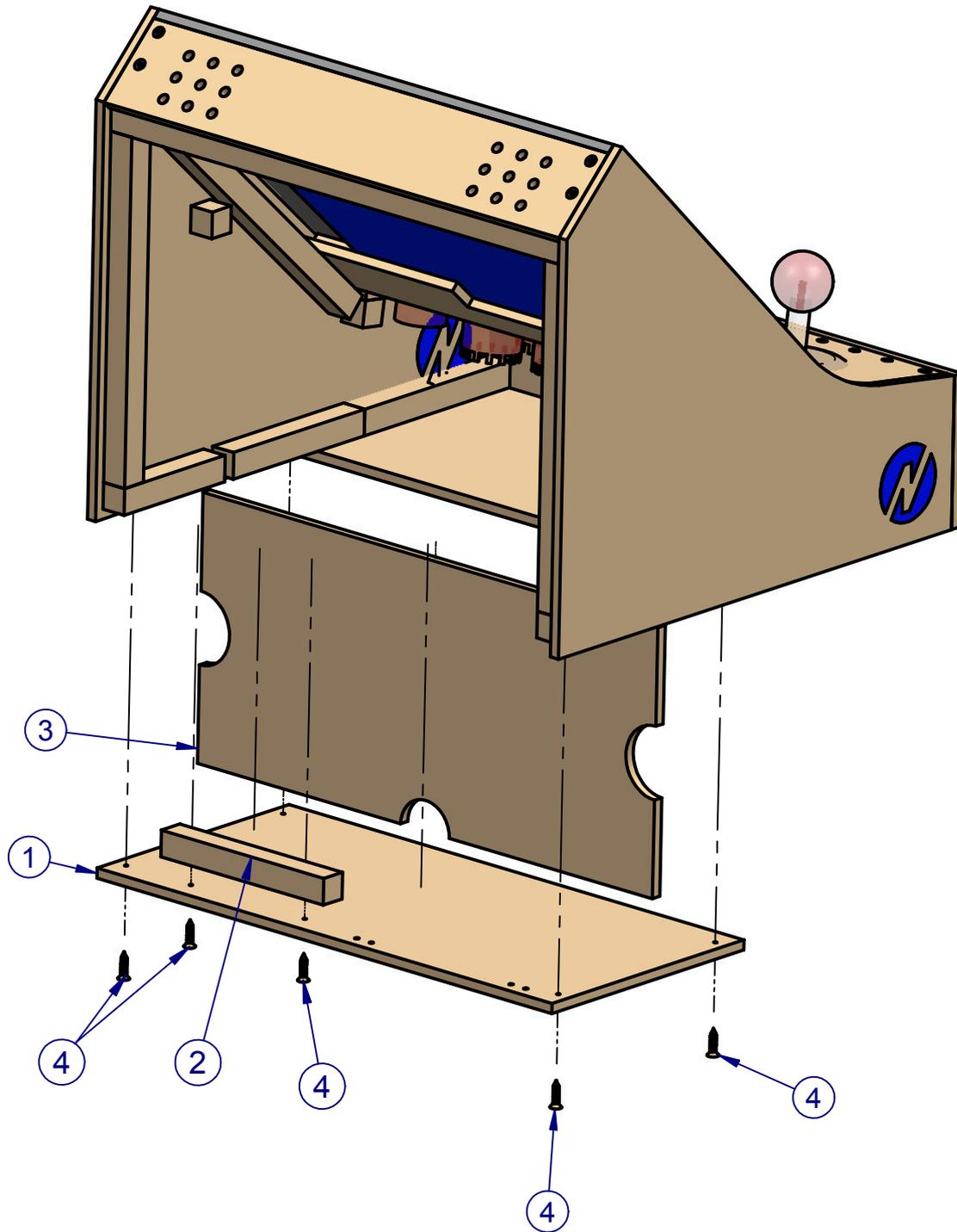
FORMAT: 16:9



SCREEN 10"

FORMAT: 16:10





Number	Quantity	Part
1	1	Bottom2
2*	1	Guide-1
3	1	PCB's suport
4	8	Screw3x13

Step 4 -PCB's SUPORT & BOTTOM -

Number:
M04

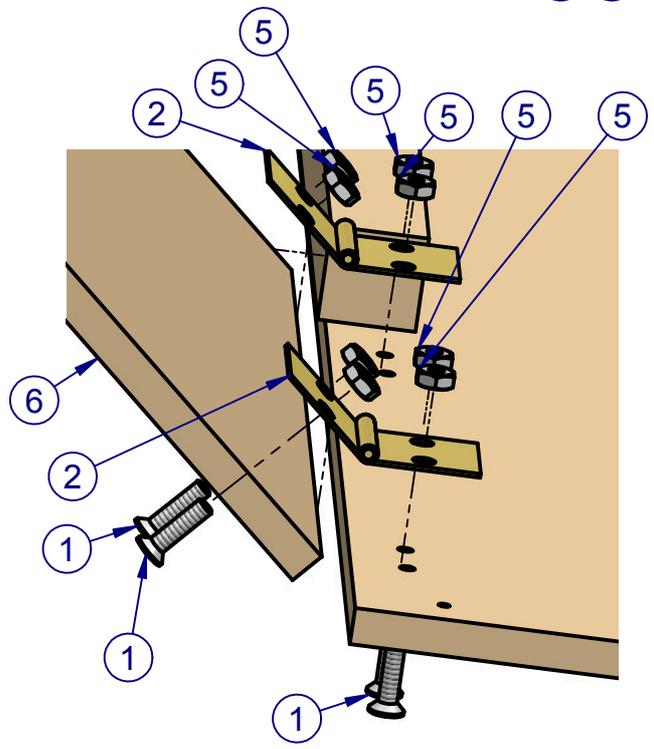
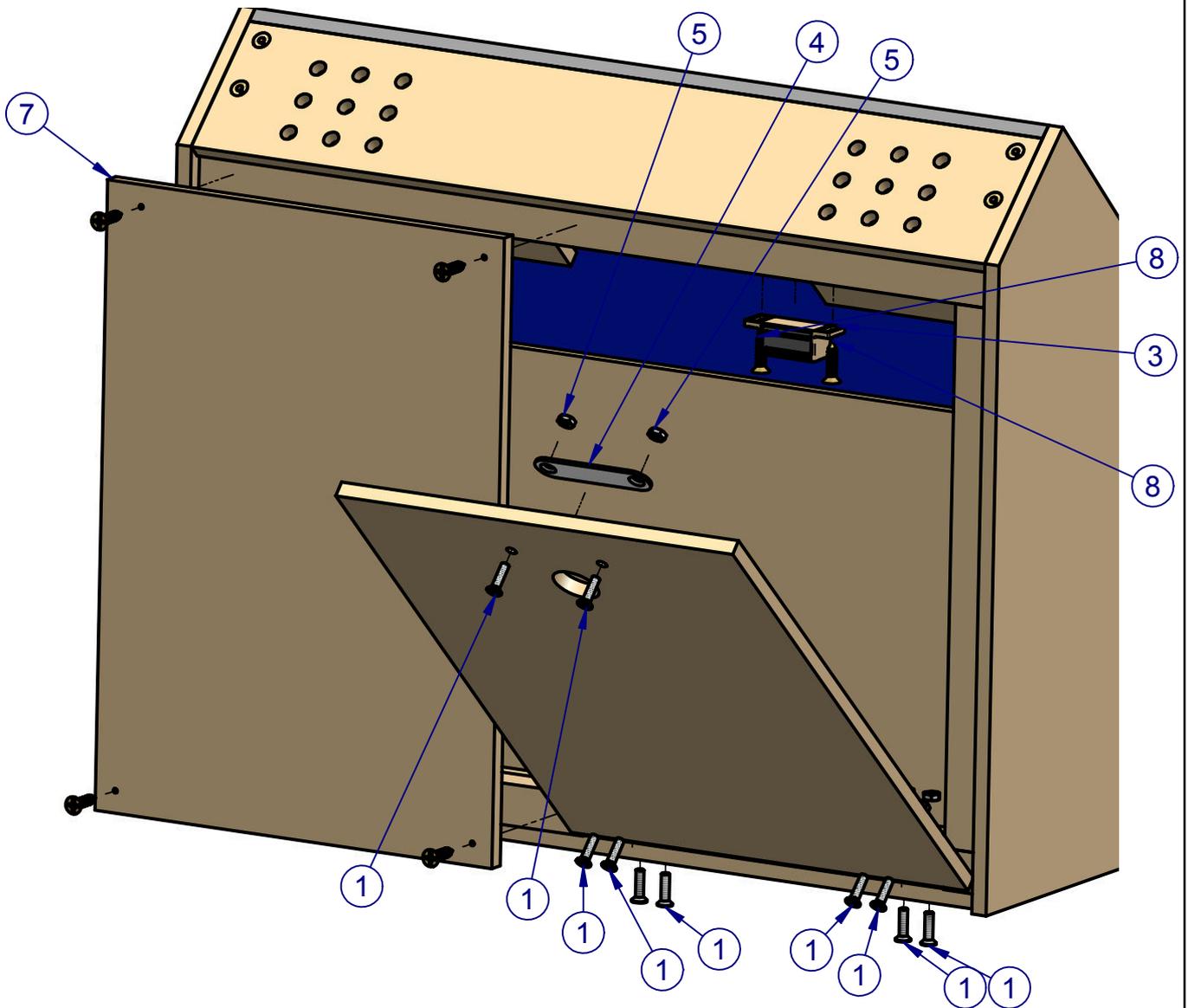
Edition:
1

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Date: 01/08/16



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Number	Quantity	Part
1	10	Bolt.M2.5x10
2	2	Hinge
3	1	Magnetic closure Body
4	1	Magnetic closure metal
5	10	Nut_M2,5
6	1	Rear-L
7	1	Rear-R
8	6	Screw3x13

Step 5 -REAR COVERS -

Number: M05

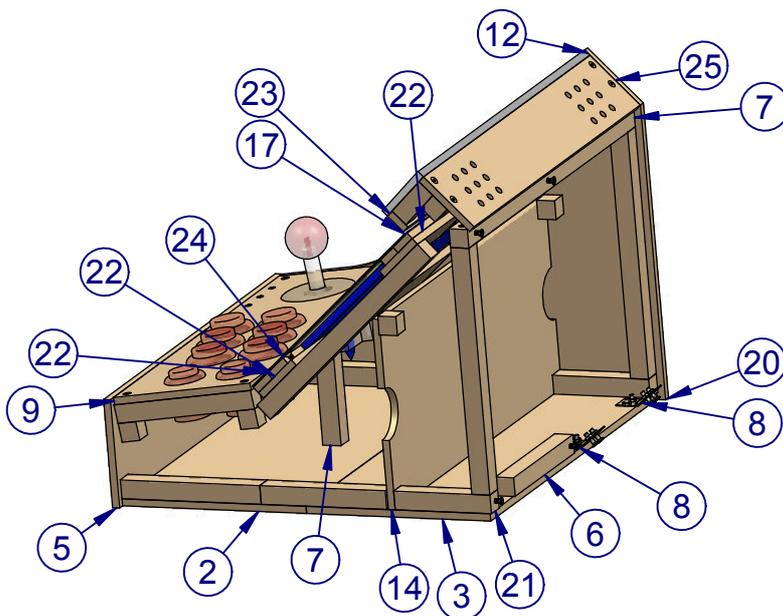
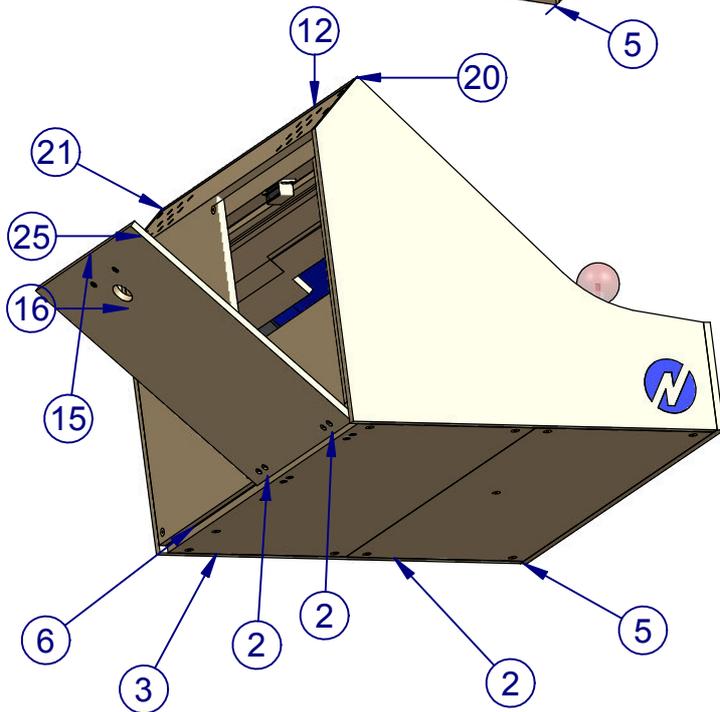
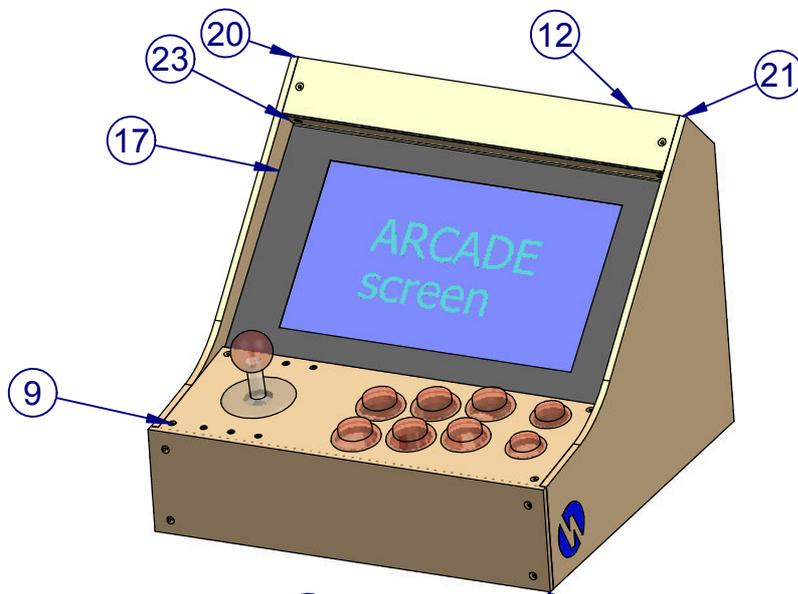
Edition: 1

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Date: 01/08/16



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Number	Quantity	Part
1*	16	Bolt.M2.5x10
2	1	Bottom1
3	1	Bottom2
4	1	Column_Joypad
5	1	Front_Joypad
6	1	Guide-1
7	1	Guide-5
8	2	Hinge
9	1	JoyPad_Panel
10*	1	Magnetic closure Body
11*	1	Magnetic closure metal
12	1	Marquee
13*	16	Nut_M2,5
14	1	PCB's suport
15	1	Rear-L
16	1	Rear-R
17	1	Screen-Saver
18*	7	Screw.3x19
19*	40	Screw3x13
20	1	Side_Left
21	1	Side_Right
22	2	SuportScreen
23	1	SuportScreen-1AD
24	4	SuportScreen-2
25	1	Top-Fan
26*	6	Washer M2,5

GENERAL LAYOUT

Number:
M05

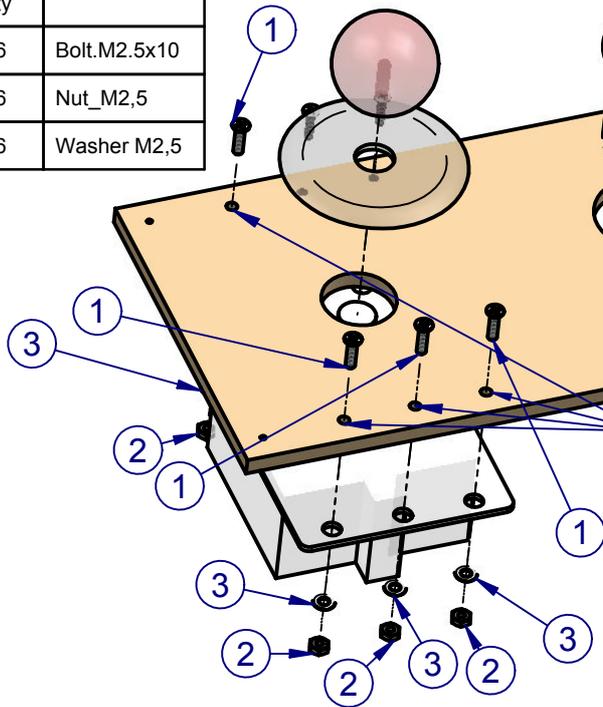
Edition:
1

Author: *Nestor García*

Date: 01/08/16

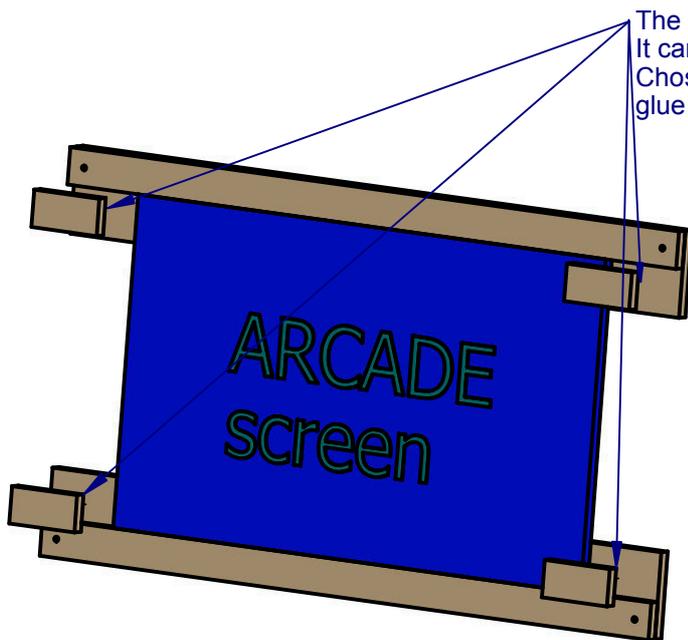
by:
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Number	Quantity	Part
1	6	Bolt.M2.5x10
2	6	Nut_M2,5
3	6	Washer M2,5



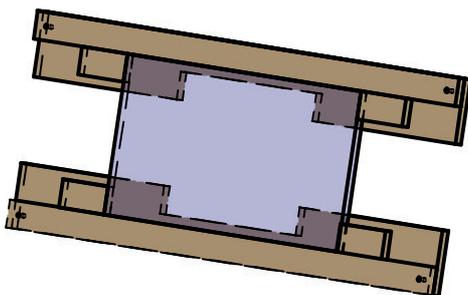
This drills are NOT DONE. It's because the position of this holes could change depending of your pad. Then you have to do this drills.
Diameter of the drills = $\varnothing 2,5 - \varnothing 3$

JOYPAD NOT INCLUDED

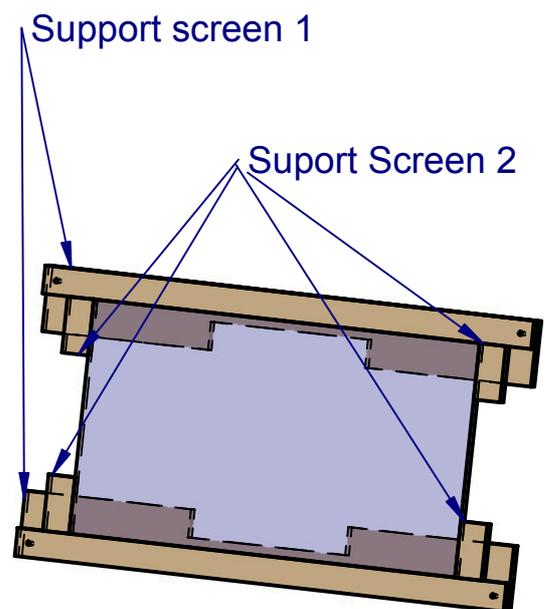


The position of the item "support-screen-2" is not defined. It can change depending on the size and format of the screen. Chose the best position for your screen and put a drop of elastic glue in this positions.

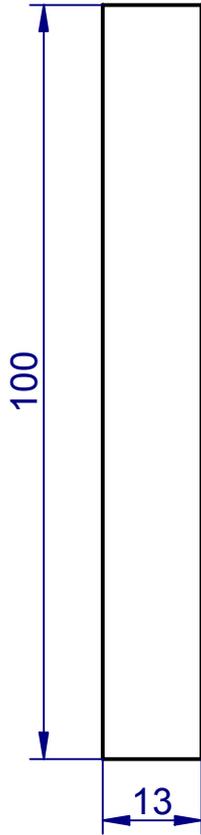
Example for 16:10 10" scen



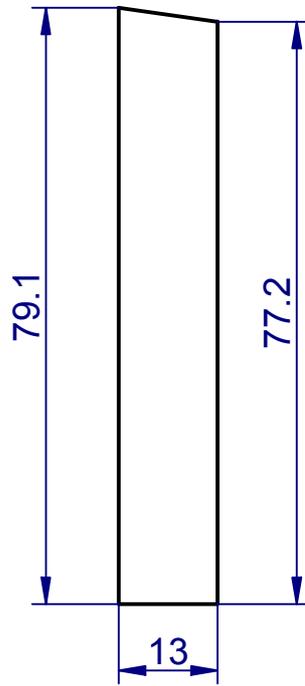
Example for 16:9 7" scen



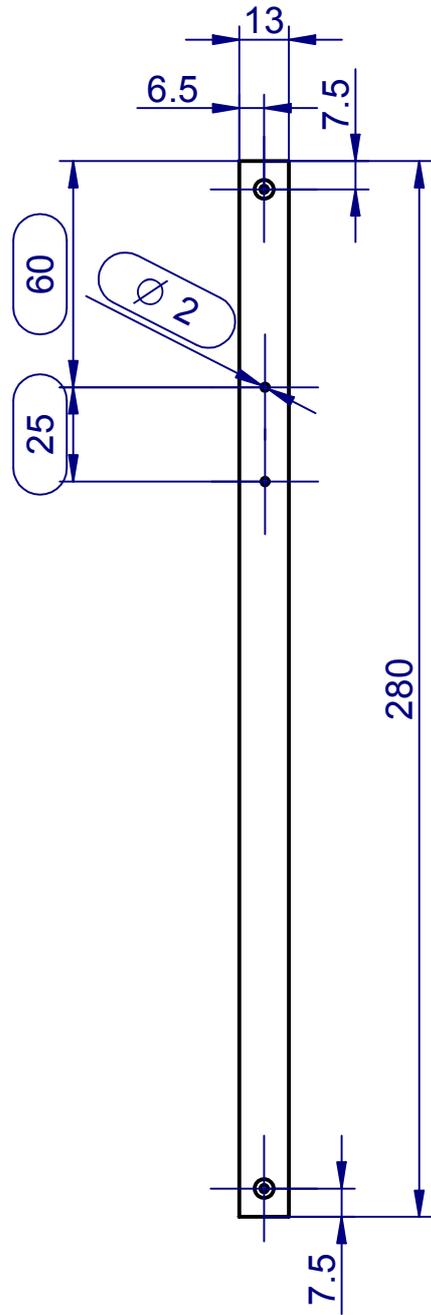
Example for 16:9 10" scen



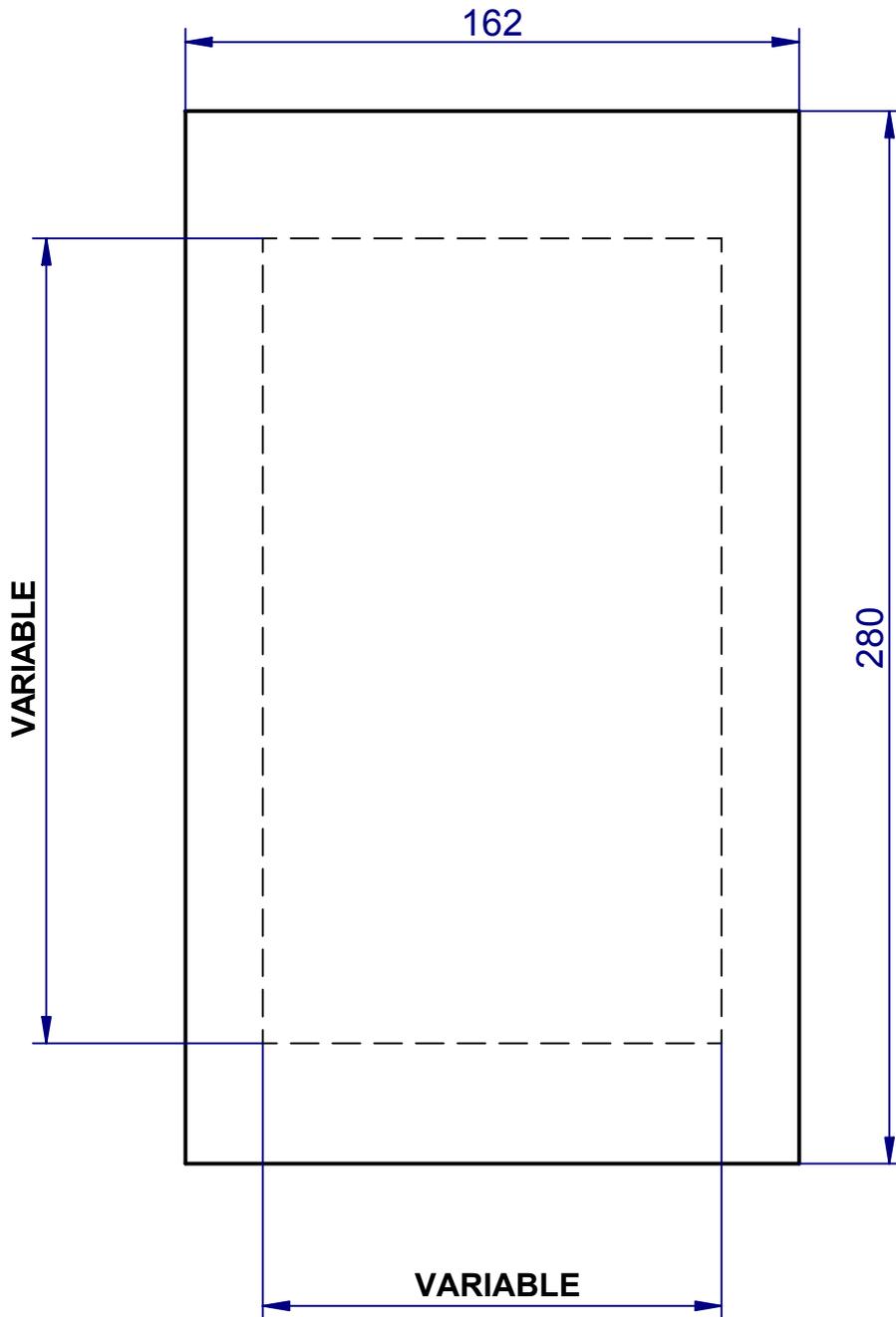
GUIDE 1



COLUMN JOYPAD



GUIDE 5



This black borders have to be painted, the save screen included are not painted.

Some orientative sizes are:

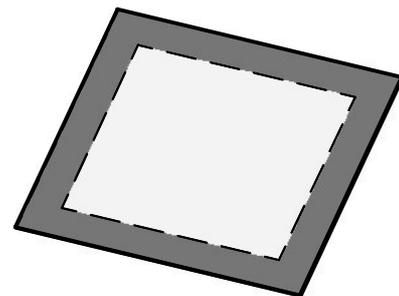
Screen 7" 16:9 = 155x86mm

Screen 7" 16:10 = 150x94mm

Screen 10" 16:9 = 221x215mm

Screen 10" 16:10 = 215x134mm

For more paint instructions watch the manual.



Screen Saver

QUANTITY: 1

MATERIAL: Metracrilato 1mm

FINISHED: Painted

Number:
P06

Date:
03.08.16

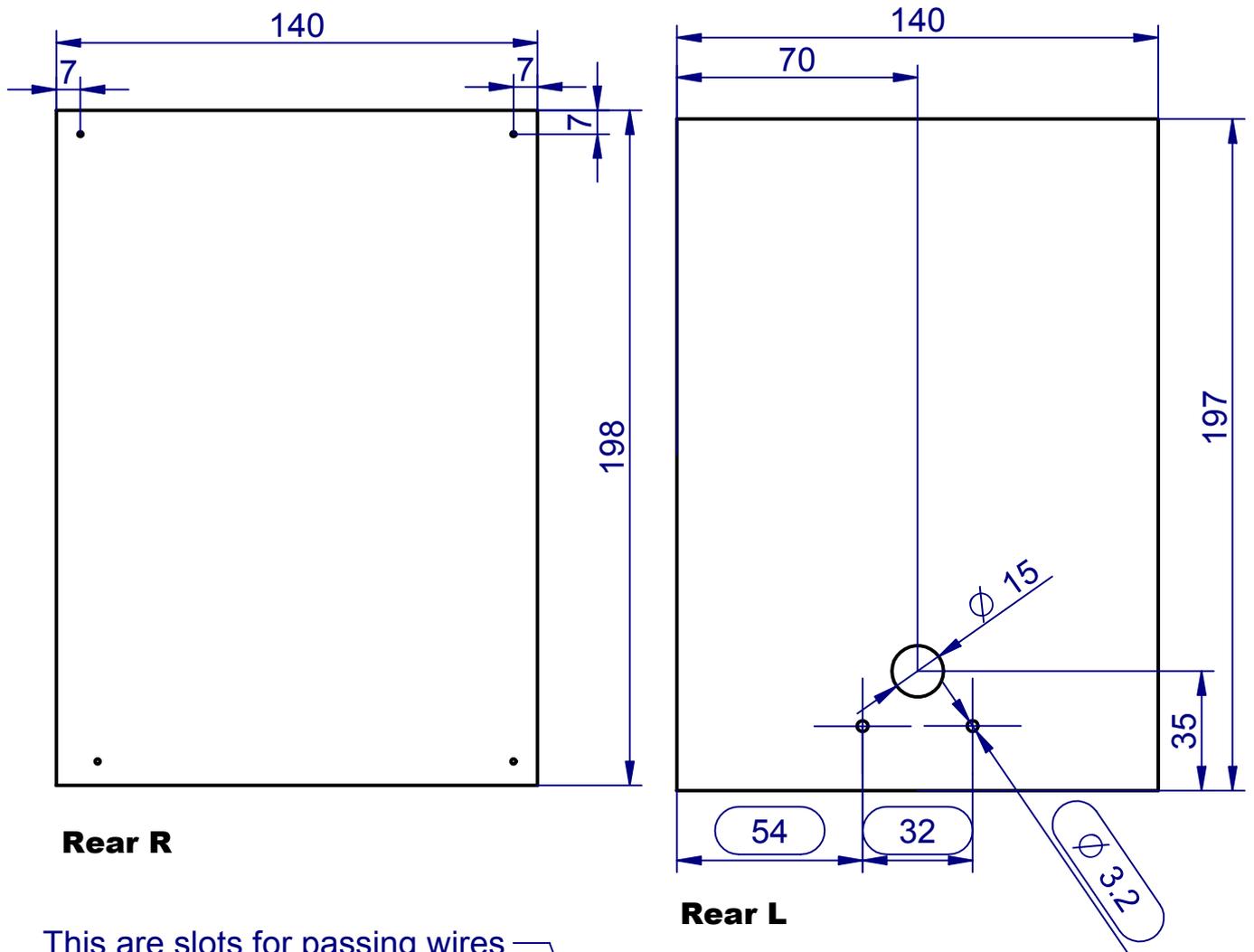
Edition:
1

Scale:
1:2

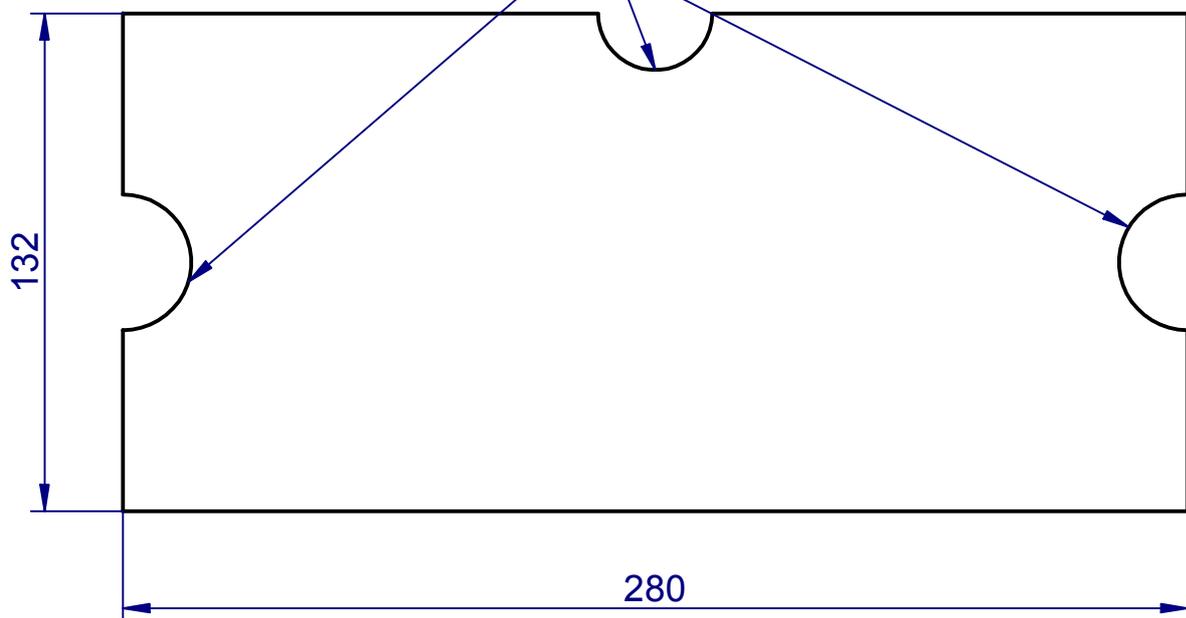
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This are slots for passing wires
could be not necessary



Rear L / Rear R / Pcb's Support

QUANTITY: 1

MATERIAL: Wood 5mm

FINISHED: -

Number:
P05

Date:
03/08/16

Edition:
1

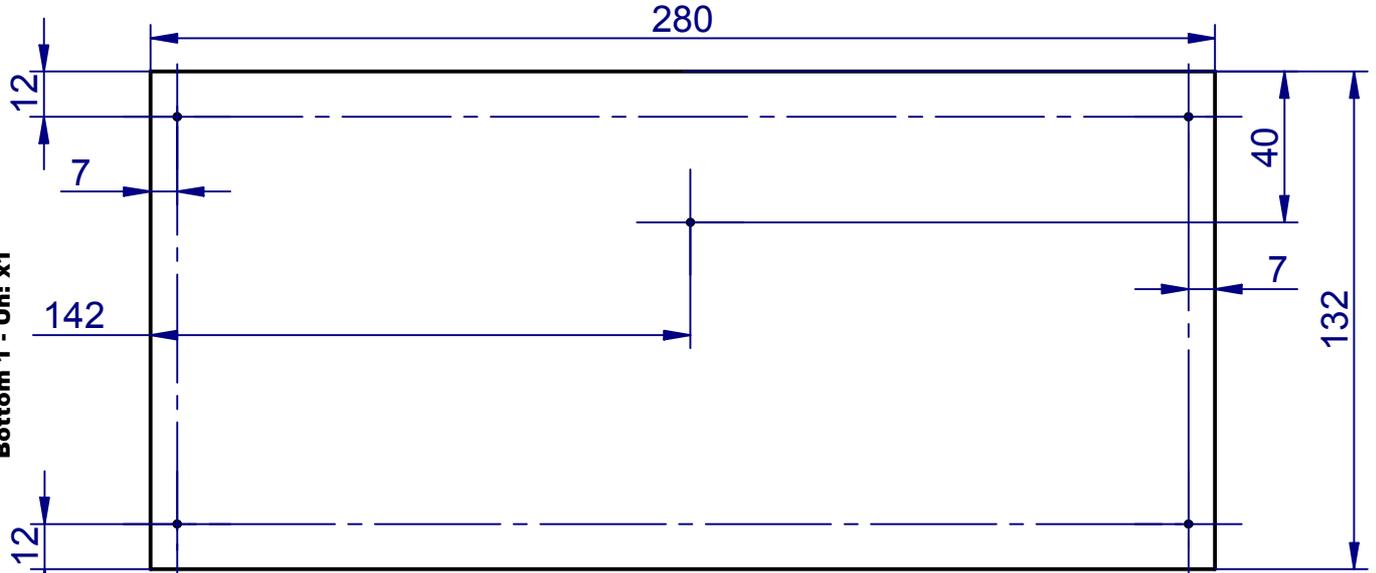
Scale:
1:2

Author: Nestor García

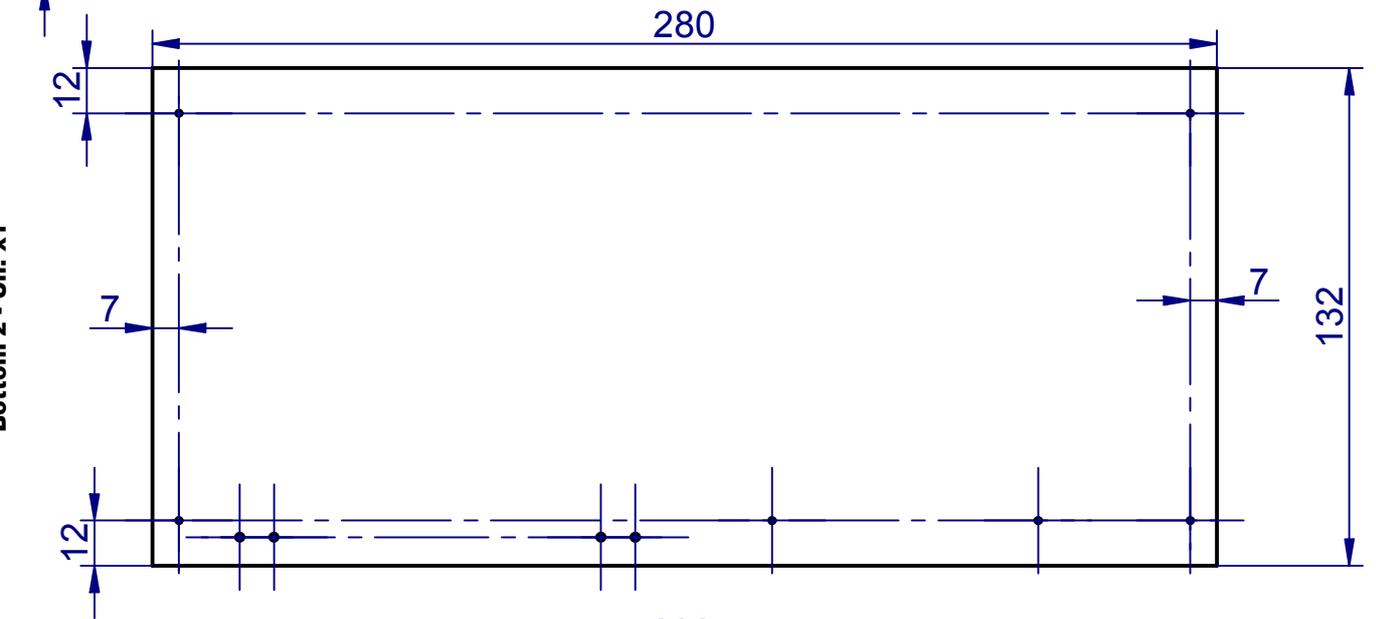


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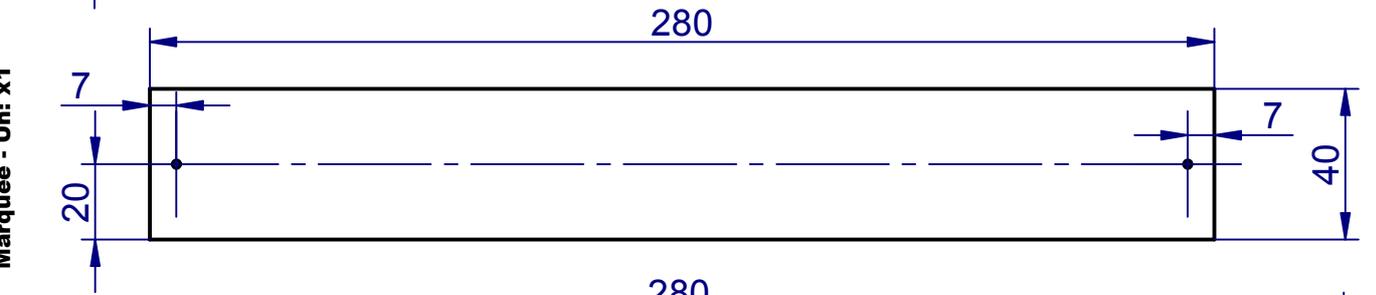
Bottom 1 - Un: x1



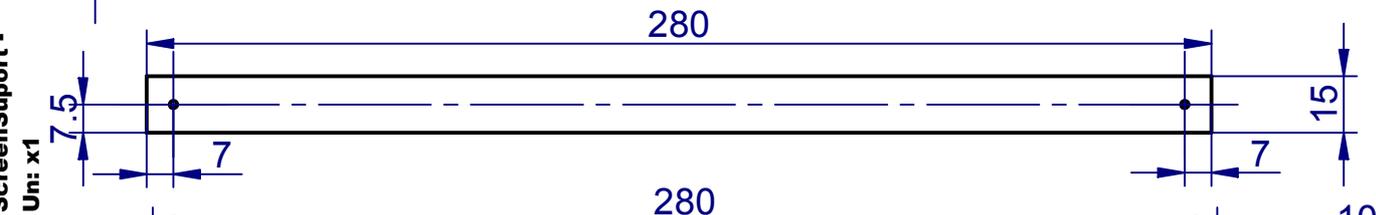
Bottom 2 - Un: x1



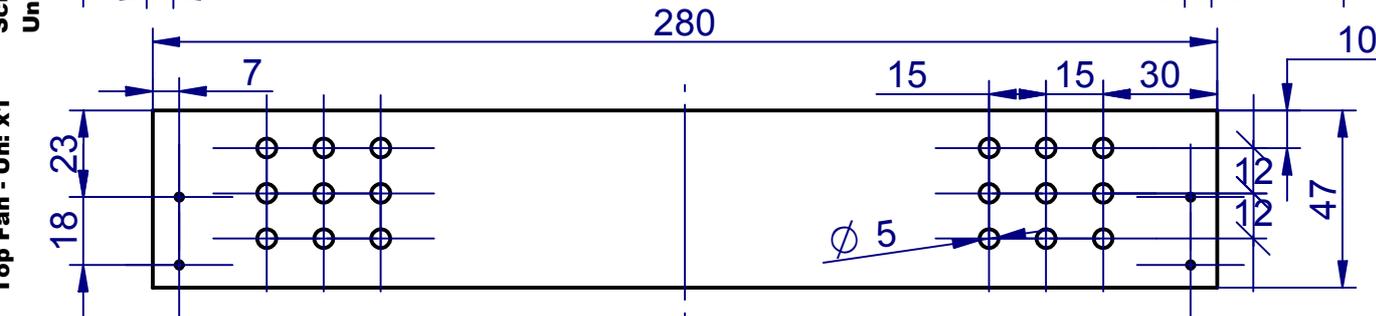
Marquee - Un: x1



ScreenSupport - Un: x1



Top Fan - Un: x1



BOTTOM 1 / BOTTOM 2 /
MARQUE / SCREEN SUPPORT /
TOP FAN

QUANTITY: Various
MATERIAL: Wood 5mm
FINISHED: -

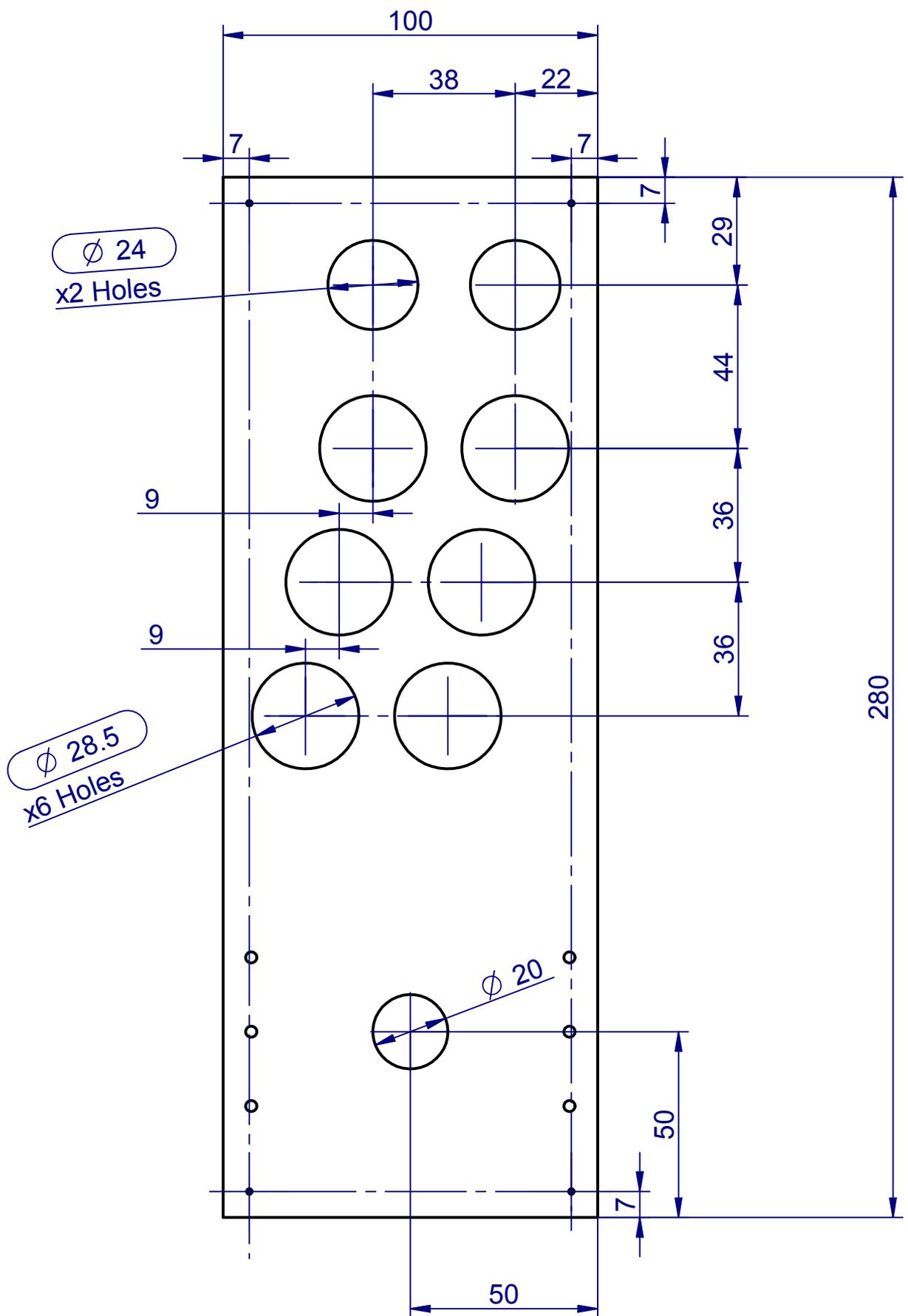
Number: P04
Date: 01/08/16

Edition: 1
Scale: 1:2

Author: Nestor Garcia



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JOYPAD PANEL

QUANTITY: 1

MATERIAL: WOOD 5mm

FINISHED: -

Number: P03

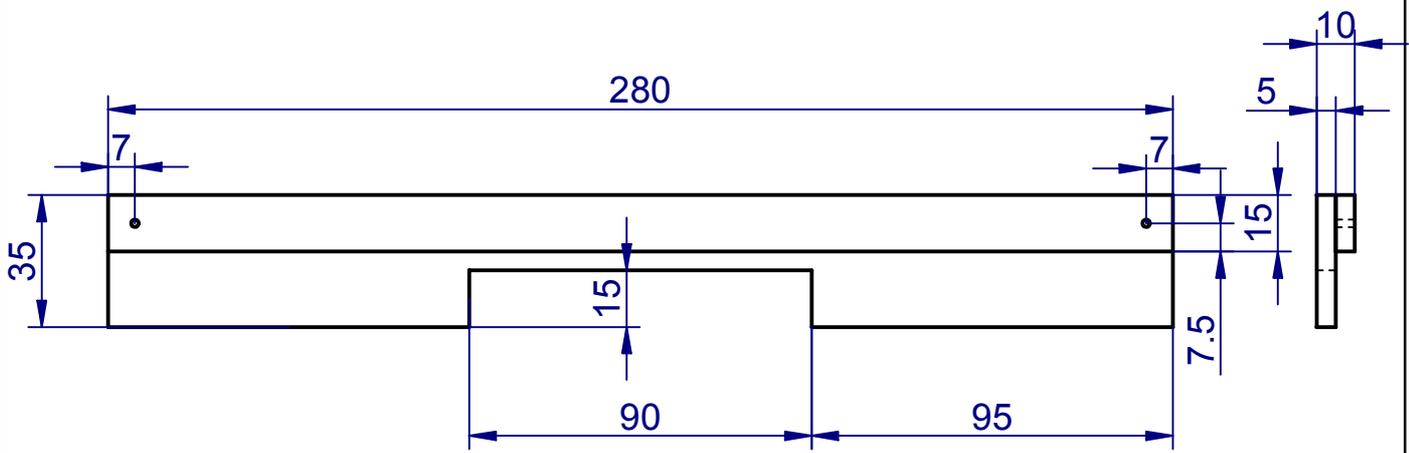
Date: 01/08/16

Edition: 1

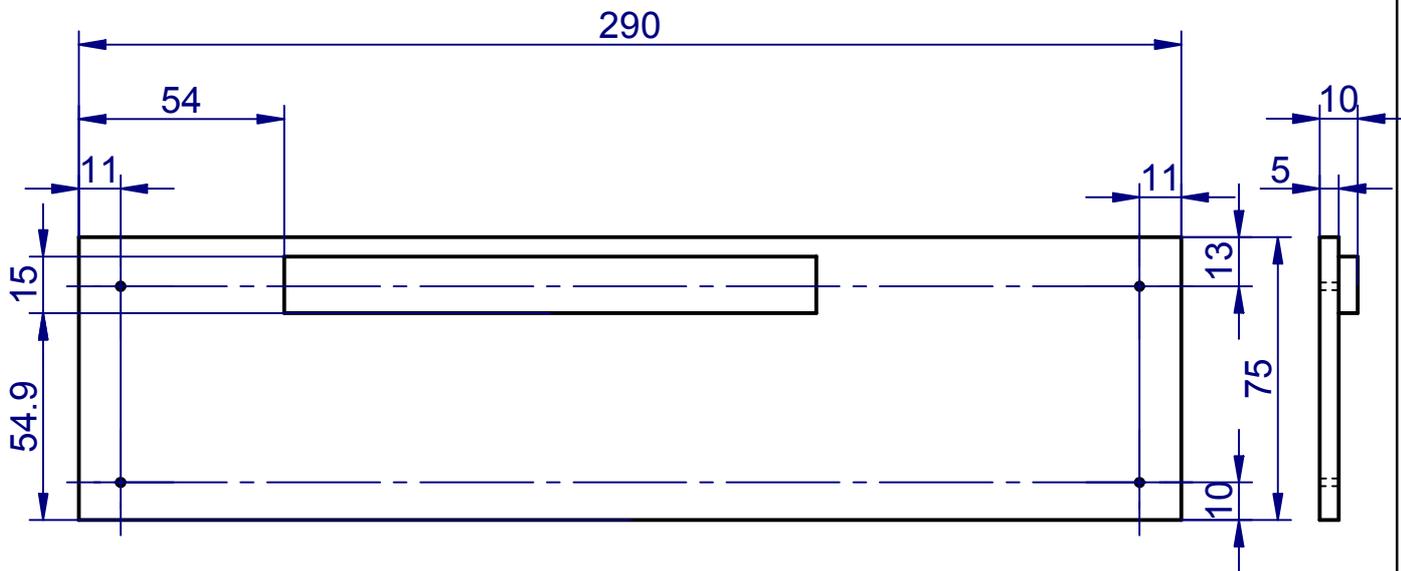
Scale: 1:1

Author: Nestor García





Screen_Support_1
(x2un)



Front_Joyypad
(x1un)

Screen suport / Front Joyypad

QUANTITY: 2/1

MATERIAL: Wood

FINISHED: x

Number:
P02

Edition:
1

Date: 01/08/16

Author: Nestor Garcia



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