Boxes

April 12, 2021

1 Screen conversion

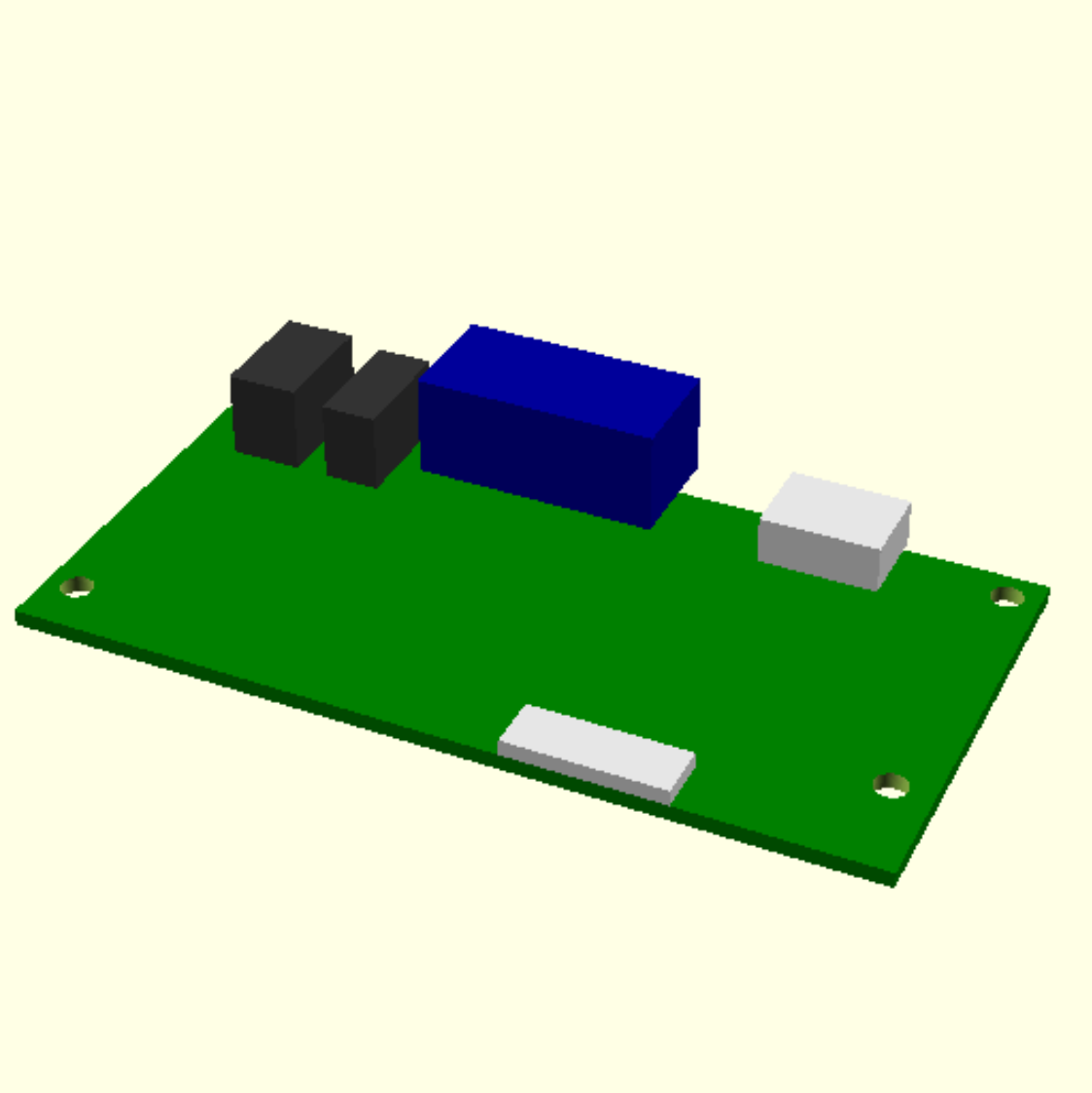
converting a broken asus displayport full hd screen to HDMI with a new housing made of wood.

1.1 HDMI display Board approximation for subtraction from housings

[1]:
```
//hdmi display board
module hdmiBoard(ext) {
    boardThick=2;
    boardWidth=107;
    boardDepth=55;
    holeRad=2;
    Extrude=ext; //extrude the ports or set to 0 for real board
    difference(){
        $fn=100;
        union(){
            color([0,.5,0]) cube([boardWidth,boardDepth,boardThick]);
            color([.2,.2,.2]) translate([6,boardDepth-15,boardThick])␣
↪cube([9,15+Extrude,11]); //power
            color([.2,.2,.2]) translate([19,boardDepth-15,boardThick])␣
↪cube([7,15+Extrude,10]); //audio
            color([0,0,0.6]) translate([29,boardDepth-9,boardThick])␣
↪cube([31,15+Extrude,13]); //vga
            color([.9,.9,.9]) translate([74,boardDepth-9.5,boardThick])␣
↪cube([15,11+Extrude,6]); //hdmi
            color([.9,.9,.9]) translate([62,0-Extrude,boardThick])␣
↪cube([20,7+Extrude,2]); //display cable 30 pin
        }
        translate([2+holeRad,5+holeRad,-.01]) cylinder(h=boardThick+.
↪1,r=holeRad);
        translate([2+holeRad,boardDepth-2.5-holeRad,-.01])␣
↪cylinder(h=boardThick+.1,r=holeRad);
        translate([boardWidth-holeRad-2,boardDepth-holeRad-2,-.01])␣
↪cylinder(h=boardThick+.1,r=holeRad);
        translate([boardWidth-holeRad-3,11+holeRad,-.01])␣
↪cylinder(h=boardThick+.1,r=holeRad);
    }
```

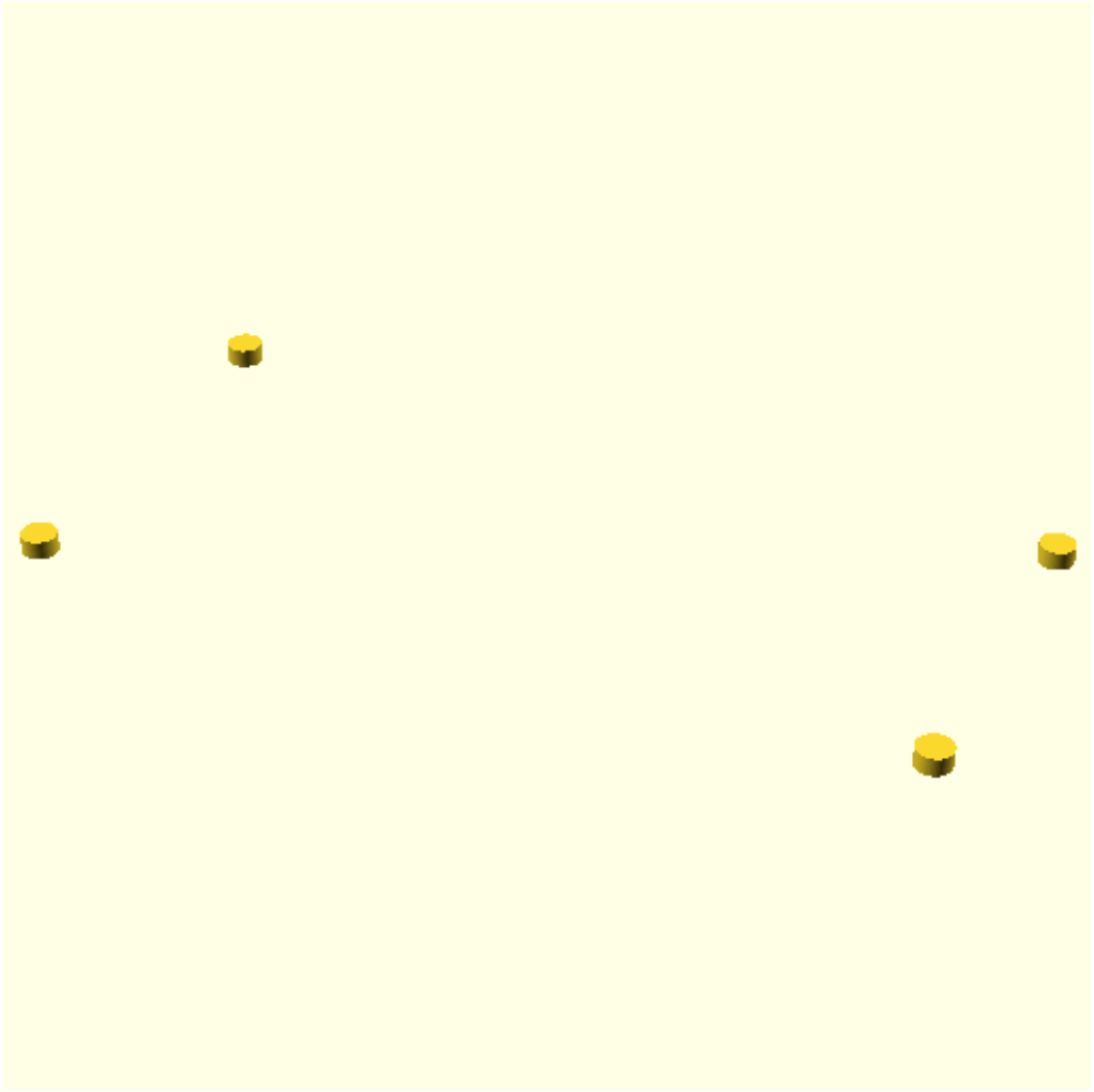
```
}
module pillars() {
    boardThick=2;
    boardWidth=107;
    boardDepth=55;
    holeRad=2;
    Extrude=ext; //extrude the ports or set to 0 for real board
    $fn=100;
    translate([2+holeRad,5+holeRad,-.01]) cylinder(h=boardThick+.1,r=holeRad);
    translate([2+holeRad,boardDepth-2.5-holeRad,-.01]) cylinder(h=boardThick+.
 ↪1,r=holeRad);
    translate([boardWidth-holeRad-2,boardDepth-holeRad-2,-.01])␣
 ↪cylinder(h=boardThick+.1,r=holeRad);
    translate([boardWidth-holeRad-3,11+holeRad,-.01]) cylinder(h=boardThick+.
 ↪1,r=holeRad);
}
%display hdmiBoard(0);
```

```
Compiling design (CSG Products normalization)…
Normalized CSG tree has 11 elements
```



[2]:
```
%display pillars();
```

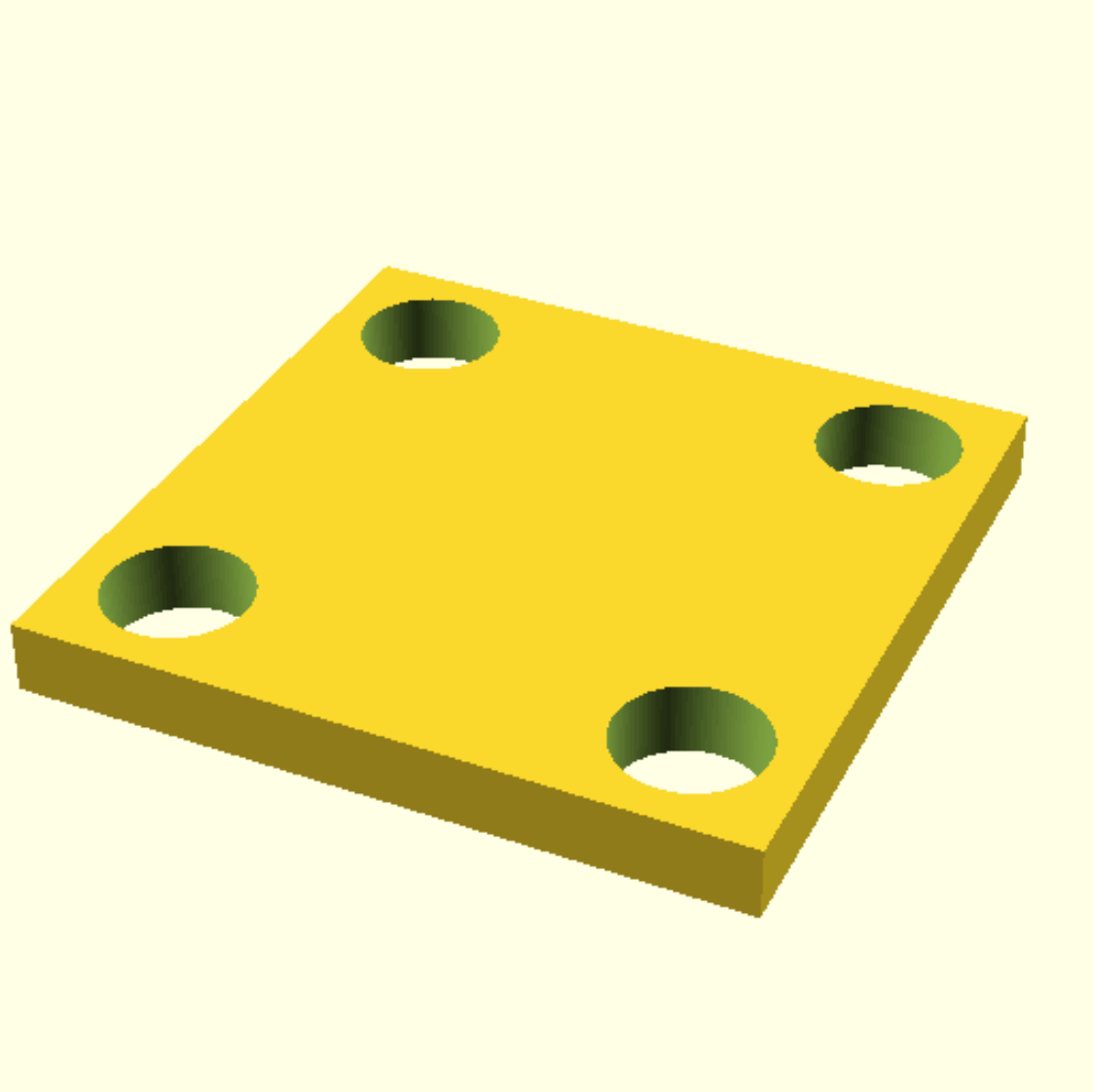
```
WARNING: Ignoring unknown variable 'ext', in file tmpam1zi3oy.scad, line 29.
Compiling design (CSG Products normalization)…
Normalized CSG tree has 4 elements
```



[3]:
```
module plate(width,depth,height,inRad,Off) {
    //blanking plate
    plateWidth=width;
    plateDepth=depth;
    plateHeight=height;
    screwHoleRad=inRad;
    screwEdgeOff=Off;
    difference(){
        //plate
        cube([plateWidth,plateDepth,plateHeight]);
        //screwholes
        $fn=100;
```

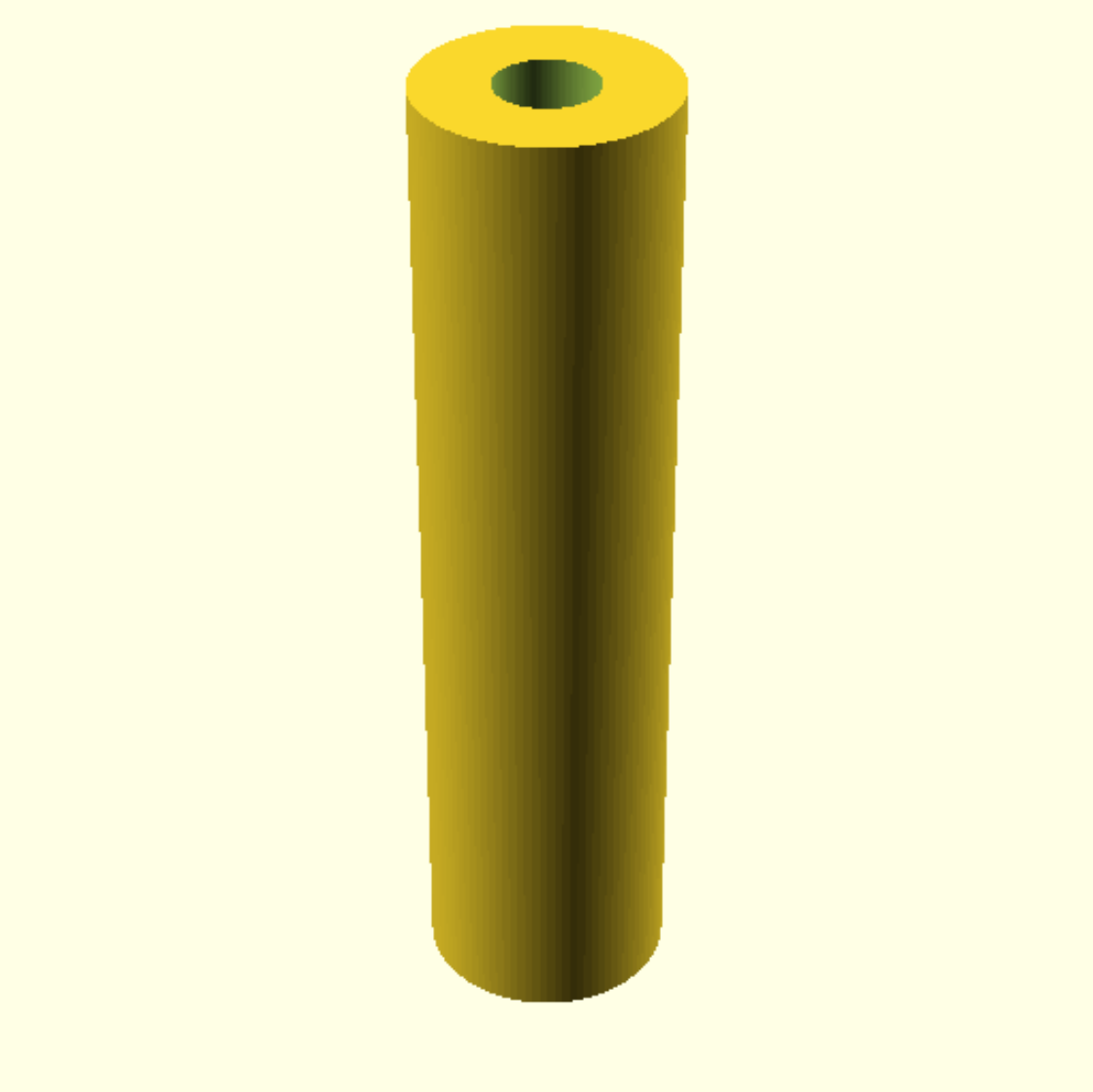
```
        translate([screwEdgeOff,screwEdgeOff,-.5])␣
↪cylinder(h=plateHeight+1,r=screwHoleRad);
        translate([plateWidth-screwEdgeOff,screwEdgeOff,-.5])␣
↪cylinder(h=plateHeight+1,r=screwHoleRad);
        translate([screwEdgeOff,plateDepth-screwEdgeOff,-.5])␣
↪cylinder(h=plateHeight+1,r=screwHoleRad);
        translate([plateWidth-screwEdgeOff,plateDepth-screwEdgeOff,-.5])␣
↪cylinder(h=plateHeight+1,r=screwHoleRad);
    }
}
%display plate(20,20,2,2,3);
```

```
Compiling design (CSG Products normalization)…
Normalized CSG tree has 5 elements
```



[4]:
```
module pillar(height,inRad,outRad) {
    $fn=100;
    difference(){
        cylinder(h=height,r=outRad);
        translate([0,0,-.05]) cylinder(h=height+.1,r=inRad);
        }
}
%display pillar(40,2,5);
```

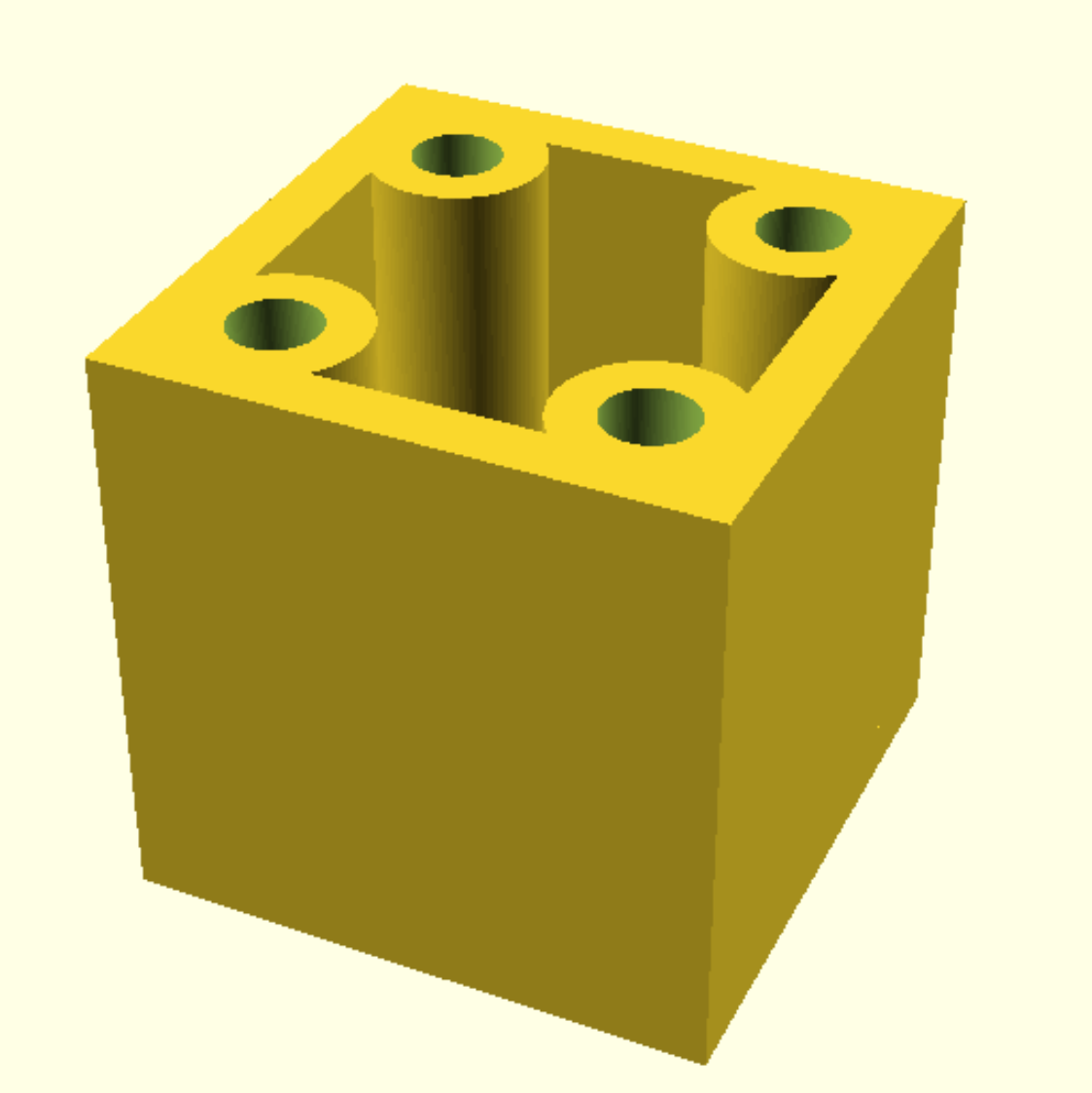
```
Compiling design (CSG Products normalization)…
Normalized CSG tree has 2 elements
```



[5]:
```
module housing(width,depth,height,wallThick,floorThick,inRad,pillarThick,off) {
    //housing
    boxWidth=width;
    boxDepth=depth;
    boxFloorHeight=floorThick;
    boxWallThick=wallThick;
    boxWallHeight=height;
    screwHoleRad=inRad;
    screwPillarRad=inRad+pillarThick;
    screwEdgeOff=off;
    union(){
        //plate
        cube([boxWidth,boxDepth,boxFloorHeight]);
        echo("Dimensions floor plate",boxWidth,boxDepth,boxFloorHeight);
        translate([screwEdgeOff,screwEdgeOff,0])␣
 ↪pillar(boxWallHeight,screwHoleRad,screwPillarRad);
        translate([boxWidth-screwEdgeOff,screwEdgeOff,0])␣
 ↪pillar(boxWallHeight,screwHoleRad,screwPillarRad);
        translate([screwEdgeOff,boxDepth-screwEdgeOff,0])␣
 ↪pillar(boxWallHeight,screwHoleRad,screwPillarRad);
        translate([boxWidth-screwEdgeOff,boxDepth-screwEdgeOff,0])␣
 ↪pillar(boxWallHeight,screwHoleRad,screwPillarRad);
    }
    translate([0,boxWallThick,boxFloorHeight])␣
 ↪cube([boxWallThick,boxDepth-boxWallThick,boxWallHeight-boxFloorHeight]);
    echo("Dimensions left wall",␣
 ↪boxWallThick,boxDepth-boxWallThick,boxWallHeight-boxFloorHeight);
    translate([0,0,boxFloorHeight])␣
 ↪cube([boxWidth-boxWallThick,boxWallThick,boxWallHeight-boxFloorHeight]);
    echo("Dimensions front wall",␣
 ↪boxWidth-boxWallThick,boxWallThick,boxWallHeight-boxFloorHeight);
    translate([boxWidth-boxWallThick,0,boxFloorHeight])␣
 ↪cube([boxWallThick,boxDepth-boxWallThick,boxWallHeight-boxFloorHeight]);
    echo("Dimensions right wall",␣
 ↪boxWallThick,boxDepth-boxWallThick,boxWallHeight-boxFloorHeight);
    translate([boxWallThick,boxDepth-boxWallThick,boxFloorHeight])␣
 ↪cube([boxWidth-boxWallThick,boxWallThick,boxWallHeight-boxFloorHeight]);
    echo("Dimensions rear wall",␣
 ↪boxWidth-boxWallThick,boxWallThick,boxWallHeight-boxFloorHeight);
}
//width,depth,height,wallThick,floorThick,inRad,pillarThick,off
%display housing(20,20,20,2,2,1.5,1.5,4);
```

```
ECHO: "Dimensions floor plate", 20, 20, 2
ECHO: "Dimensions left wall", 2, 18, 18
ECHO: "Dimensions front wall", 18, 2, 18
```

```
ECHO: "Dimensions right wall", 2, 18, 18
ECHO: "Dimensions rear wall", 18, 2, 18
Compiling design (CSG Products normalization)…
Normalized CSG tree has 13 elements
```

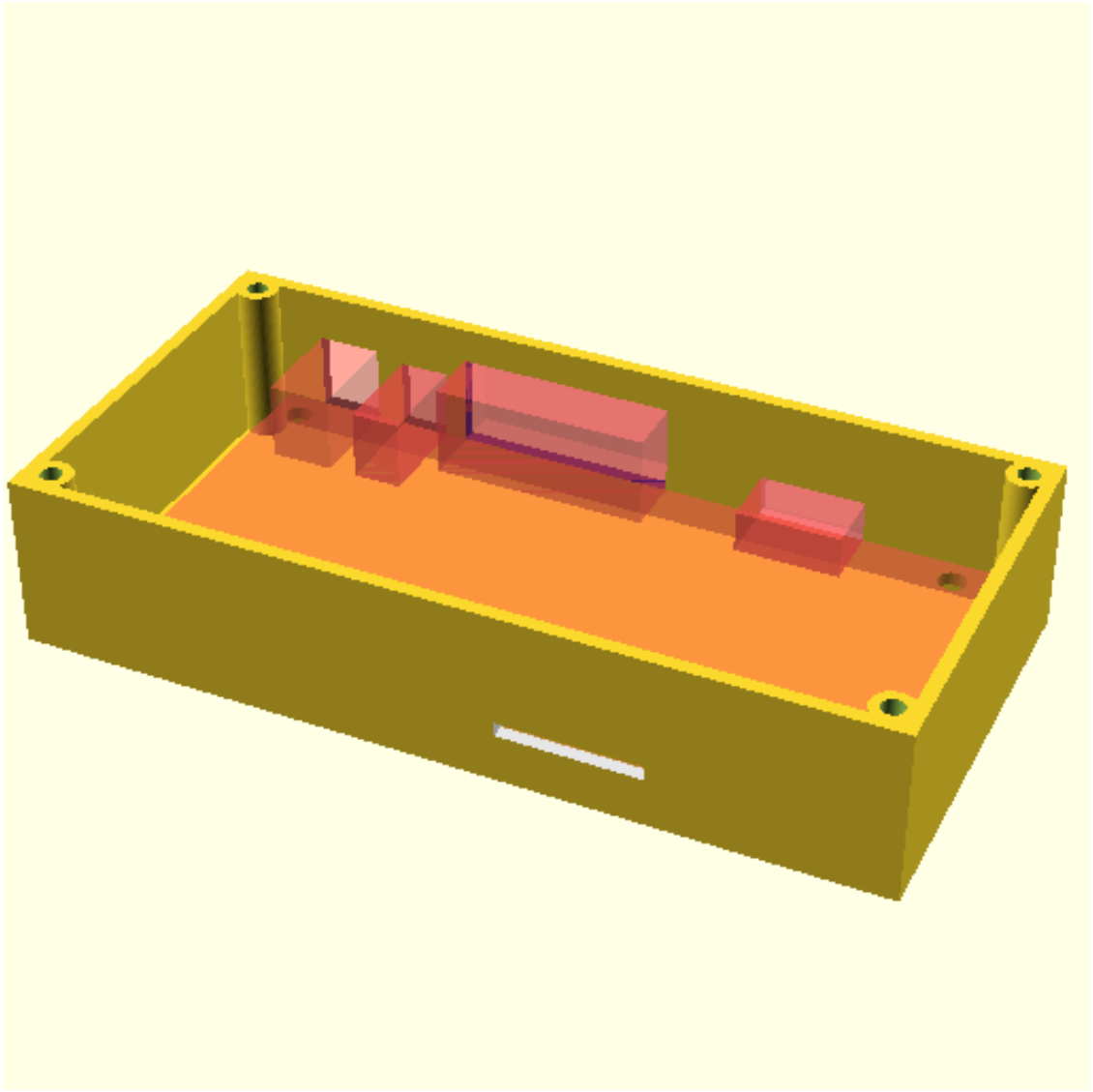


1.2 Draft Housing

[6]:
```
difference() {
    housing(122,61,25,2,2,1.5,1.5,4); //
 ↪width,depth,height,wallThick,floorThick,inRad,pillarThick,off
    translate([7,3,5]) hdmiBoard(20);
}
#translate([7,4,5]) hdmiBoard(0);
```

```
%display
```

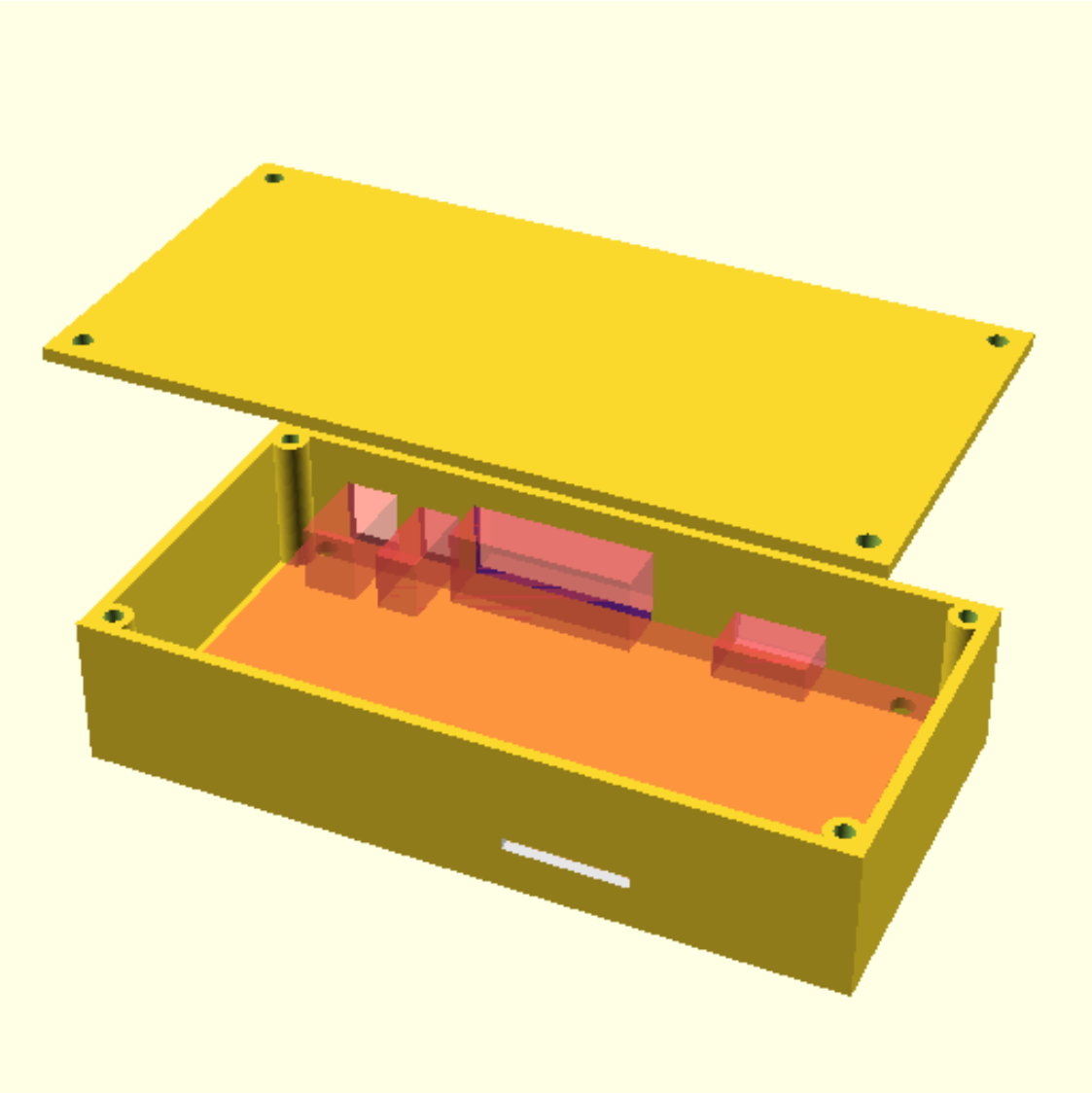
```
ECHO: "Dimensions floor plate", 122, 61, 2
ECHO: "Dimensions left wall", 2, 59, 23
ECHO: "Dimensions front wall", 120, 2, 23
ECHO: "Dimensions right wall", 2, 59, 23
ECHO: "Dimensions rear wall", 120, 2, 23
Compiling design (CSG Products normalization)…
Normalized CSG tree has 20 elements
Compiling highlights (1 CSG Trees)…
```



1.3 Draft Lid

[7]:
```
%%display
translate([0,0,70]) plate(122,61,2,1.5,4); //width,depth,height,inRad,Off
```

```
ECHO: "Dimensions floor plate", 122, 61, 2
ECHO: "Dimensions left wall", 2, 59, 23
ECHO: "Dimensions front wall", 120, 2, 23
ECHO: "Dimensions right wall", 2, 59, 23
ECHO: "Dimensions rear wall", 120, 2, 23
Compiling design (CSG Products normalization)…
Normalized CSG tree has 25 elements
Compiling highlights (1 CSG Trees)…
```



[ ]: