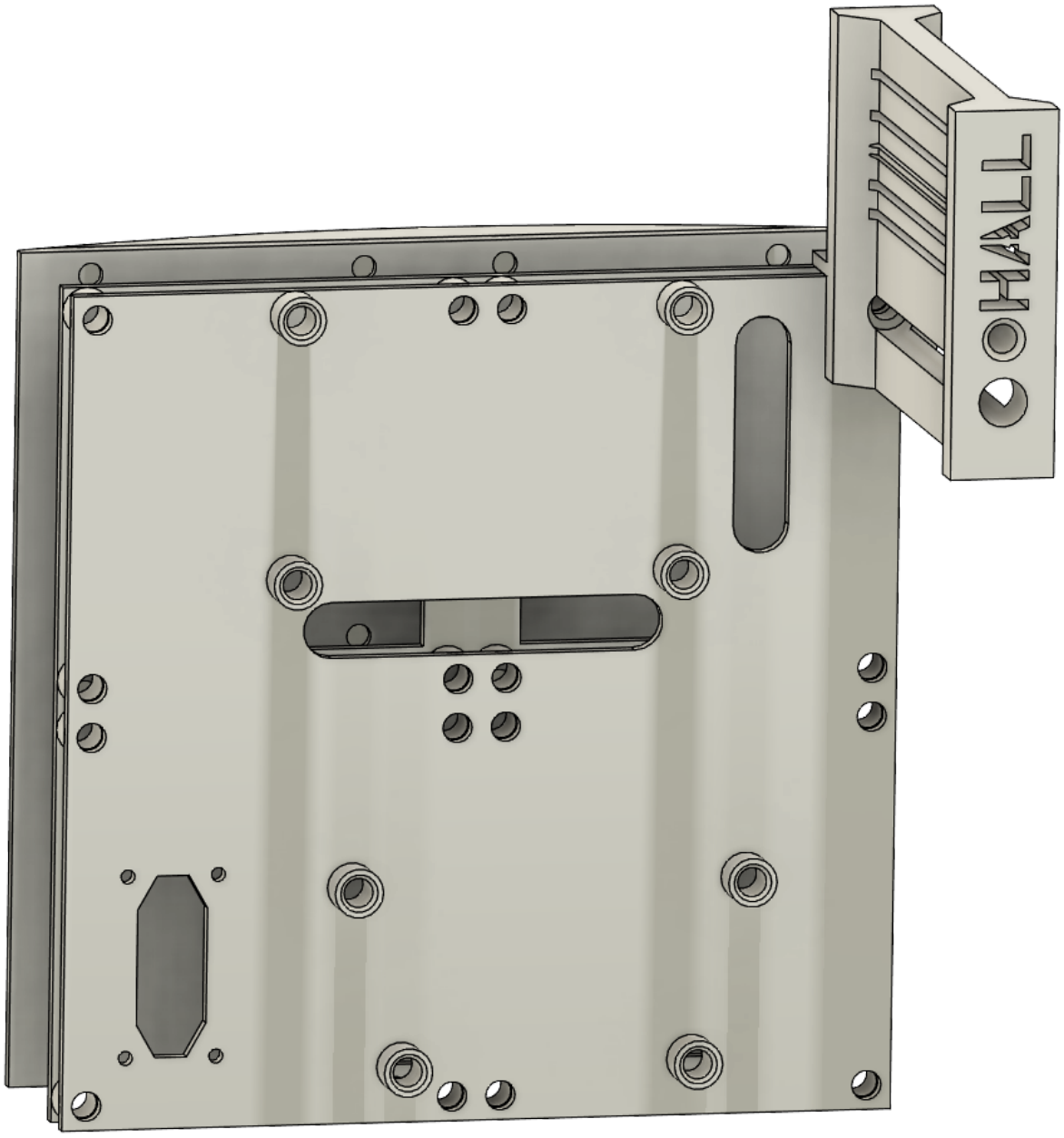
# Documentation Modular Body Backpack (MBB)




Version 1.0 created by Bastian Oelkuch with Fusion360

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⚠ **WARNING:** I am not a trained electrician and cannot take any responsibility for any damage or injury that may occur.

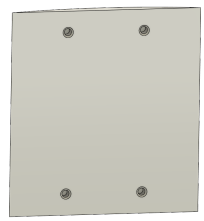
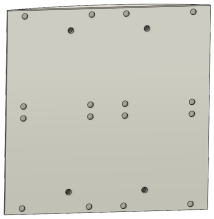
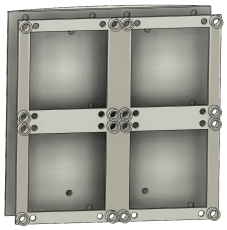
🛠 **TIP:** Have a look at the R2-D2 Modular Control Unit which is also called MCU if you want a flexible solution for the complete R2 electronics.

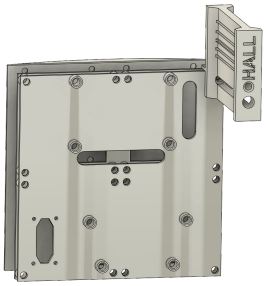
## General description and requirements

- All files have numbers at the end `d1x1` means that the panel has a size of 60x60mm.

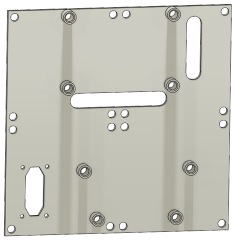
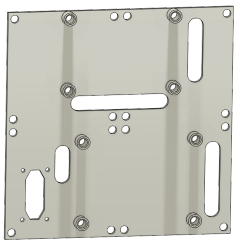
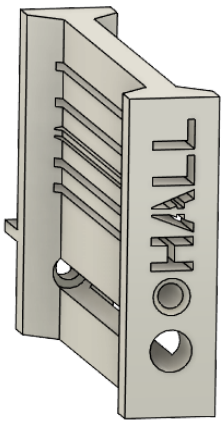
## Overview of the design

### Frame (can be seen as assembly steps)

## Panels

| Name | Screenshot |
| --- | --- |
| Panel-Buck-Converter_fixed_5V_d4x4.stl |  |
| Panel-Buck-Converter-Adjustable_d4x4.stl |  |
| Adapter-Hall-Sensor-V2.stl |  |

# Parts list

## Screws and Nuts

| Type | Quantity | Used for | Link |
|---|---|---|---|
| **M2x10 mm Cylinder Head Screw** | **4** | Attaching MPX-like connector to printed panels | |
| **M3x6 mm Countersunk Head Screw** | **16** | For connecting `Body-Adapterplate-glued.stl` and `Body-Adapterplate-screwed.stl` | |
| **M3x6 mm Pan Head Screw** | **29** | 16 for connecting `Frame.stl` and `Body-Adapterplate-screwed.stl` | |
| | | 4 for connecting the Panel to the Frame | |
| | | 4 for connection the Benduino Single to the panel | |
| | | 2-4 for attaching the Buck-Converter(s) to the panel | |
| **M3x12 mm Pan Head Screw** | **1** | 1 for connecting `Adapter-Hall-Sensor-V2.stl` to the frame/panel | |

## Threaded inserts, Standoffs & Bearings

| Type | Quantity | Used for | Link |
|---|---|---|---|
| **M3x5.7 mm Threaded Insert** | **27** | To fill all available inserts on the frame (additional inserts may be required based on panel used), the boards and hallsensor to the panel | Amazon |
| **M3x25 mm Standoffs** | **16** | Connecting the `Body-Adapterplate-glued.stl` and `Body-Adapterplate-screwed.stl` | AliExpress |

## Connectors

| Type | Quantity | Used for | Link |
|---|---|---|---|
| **MPX-like Connector** | **1** | To provide a power connection with power and up to 6 data lines to the body | AliExpress |

### Boards

| Type | Quantity | Used for | Link |
|---|---|---|---|
| **5V 15A Buck Converter** | **1** | Power supply for 5V | AliExpress |
| Altenative **5V 10A Buck Converter** | **1** | Power supply for 5V | Amazon |
| **Benduino Single** | **1** | "The Brain for all Body related servos" | printed-droid.com |
| **Hall-Sensor** | **1** | Will be provided with the AstroCan AutoDome Module | printed-droid.com |

## Assembly instructions

1. Melt in four *M3x5.7 mm threaded inserts* to the `Body-Adapterplate-glued.stl`.
2. Glue with some 2k epoxy the `Body-Adapterplate-glued.stl` to the body (or just use some double-sided tape).
3. Screw the standoffs to the `Body-Adapterplate-screwed.stl`.
4. Screw the `Body-Adapterplate-screwed.stl` to the `Body-Adapterplate-glued.stl`.
5. Scree the `Frame.stl` to the `Body-Adapterplate-screwed.stl`.
6. Prepare the panel of your choice and screw it to the `Frame.stl`.
7. Now you can add the boards and the hall sensor to finish the assembly.