# Overall Power Supply

The following are the devices and components used in its implementation. These are pertaining to the schematic of the implementation circuit as shown on the schematic figure.

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| Bill of Materials | | |
| Component | Value (as Applicable) | Utility |
| -12V/-12V2 | Screw Connector | -12V output |
| -12V1 | Screw Connector | -12V Input |
| 5V/5V1 | Screw Connector | 5V Output |
| 12V | Screw Connector | +12V input |
| 12V1/12V2 | Screw Connector | +12V output |
| C1/C4/C6/C7/C8 | 100uF | Decoupling Capacitors |
| F1/F2 | Fuse rated 5A | Fuse holder |
| IC1 | 7805 | +5V voltage regulator |
| INA | Jumper Connector | SDA/SCA for Tiva to INA |
| INA1 | Jumper Connector | +3.3 and GND output |
| JP1/JP3 | Jumper Connector | Tiva C GPIO pin map |
| JP2 | Jumper Connector | 5V low power output |
| LED1 | LED | Signal the fuse is still intact |
| LEFT/ RIGHT | Jumper Connector | Header for connecting Tiva C to |
| PC | Jumper Connector | +12V dc power supply |
| R1 | 1K | Biasing resistor for LED |
| SPI | Jumper Connector | Connector for SPI connections to & from Tiva |
| X1 | Screw Connector | For main switch |

Details of the implementation are as:

* The track size on the PCB is taken to be a minimum of 80mils. This is done in order to ensure that the amount of current that flows through the tracks is well supported.
* Decoupling capacitors are used for stabilizing the output voltages.
* SMPS are used for supplying +12V and -12V from two different SMPS. As both required +12V and -12V have different specification requirement, so does the rating of the SMPS
* This board also acts as a shield for the Tiva C.
* The main switch is connected to the ground. This means that if the switch is disconnected, there is no connection between the circuit and the ground.
* LED is used to indicate whether the fuse is intact or not. Glowing LED implies that the fuse is intact and vice versa.
* Ground PAD is kept large on the board in order to manage the high current generated heat efficiently.

