

# **Project II**

# **Lockheed Martin USB Hub**

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# ***Design Background***



**Lockheed Martin challenged us to redesign the USB hub mounting bracket that they currently had.**



# ***Introduction***

**The USB Hub needed to be redesigned with the following features:**

- i. 7 Ports**
- ii. Horizontal and Vertical Mounts**
- iii. Stackable up to 3 Hubs Tall**
- iv. Vibration Loading**

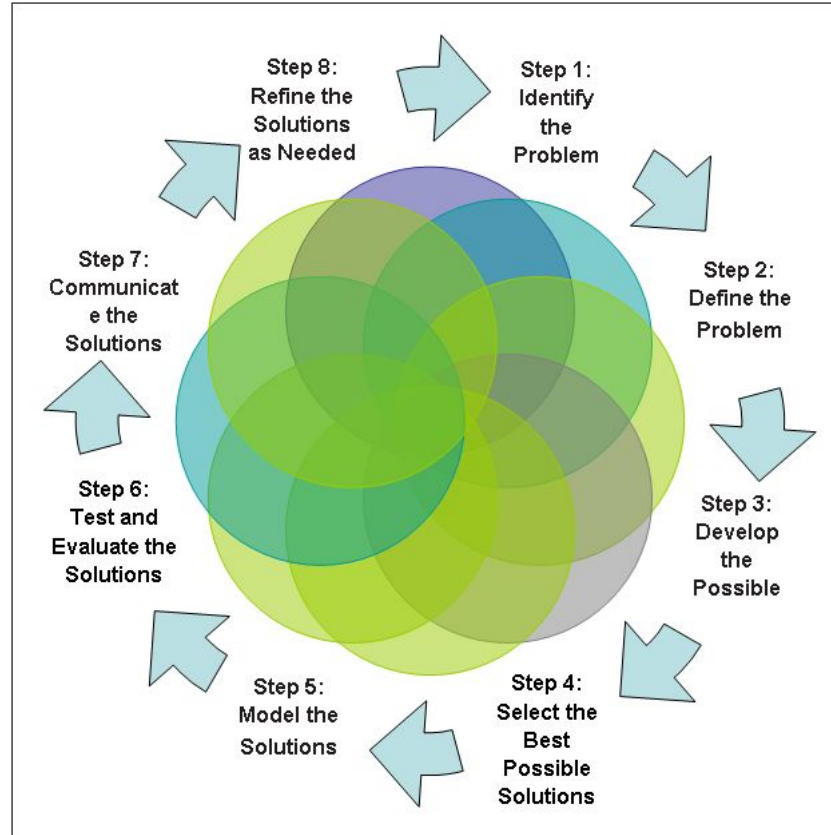


# ***Why do this project?***

- Our design can be used as a debug and auxiliary mounting device for a custom avionics mission system.
- Our design will provide a greater capability for the avionic technician through an increased capacity of connection and installation in various areas on platform.



# ***Design Process***

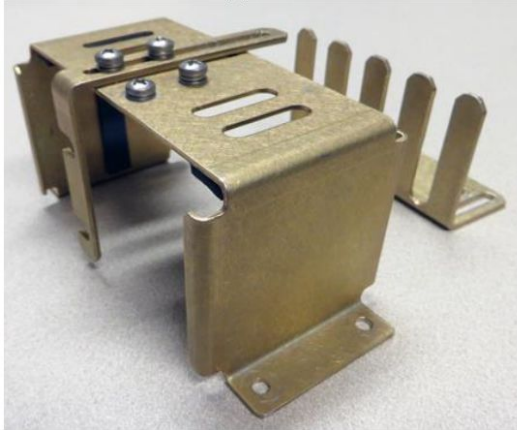
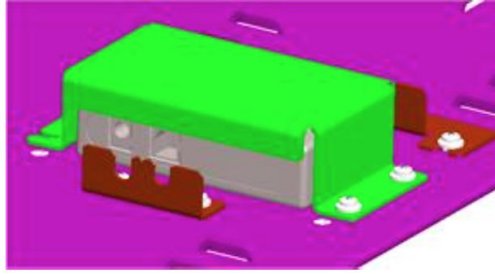
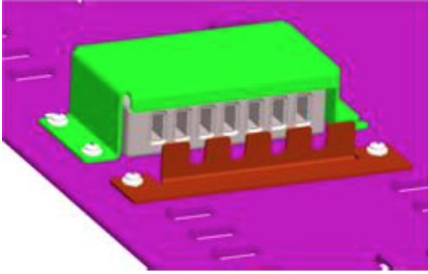


# *Existing Products*

- Customers are having trouble while using the current designs in market as they are unable to withstand the vibrations
- Current designs have a lot of assembly parts and occupy a lot of space in the aircrafts

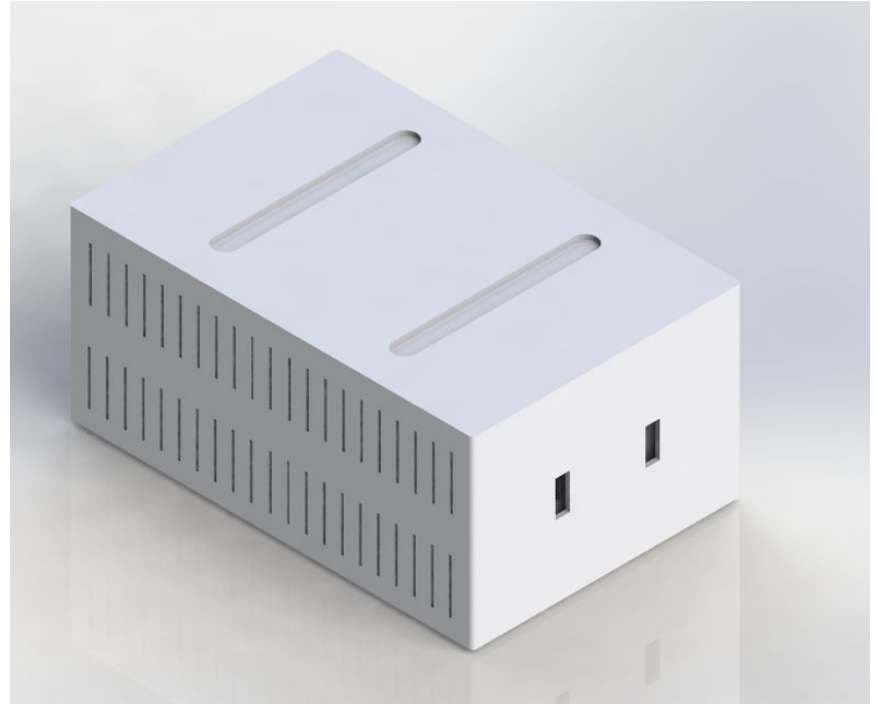


# *Existing Products*



# ***Our Design***

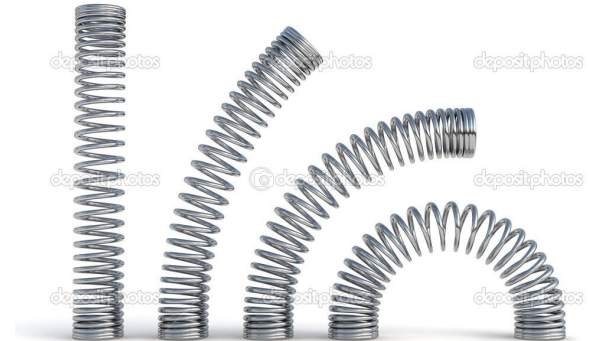
- **Our Design is made of plastic in order to reduce the weight**
- **We have used combination of spring and neoprene sponge in order to minimize the vibrations**





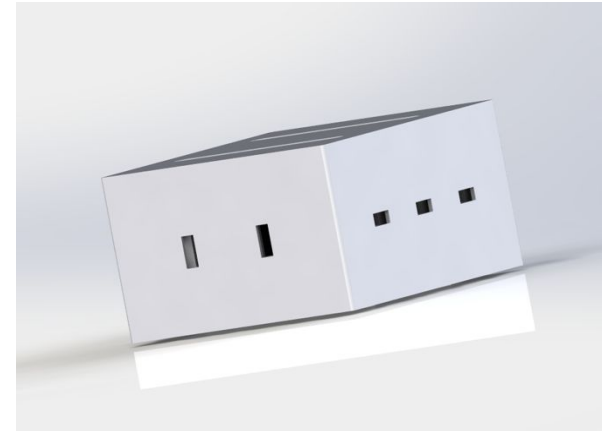
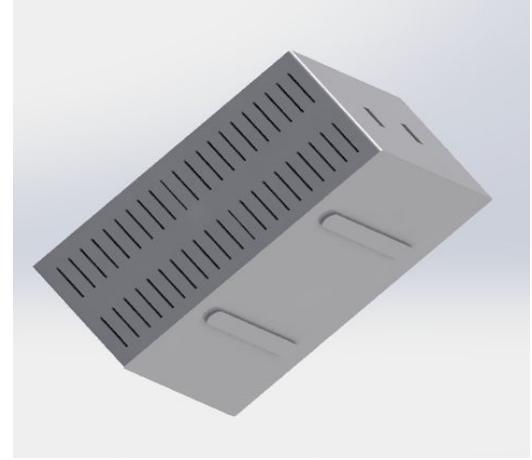
# *Features*

- **Design can be used anywhere and does not requires a lot of assembly parts**
- **Combination of the spring & sponge makes our design much more vibration insulated as compared to current market designs**
- **Increased number of ports help the customers to work more efficiently without any difficulties**



# ***Design Conclusion***

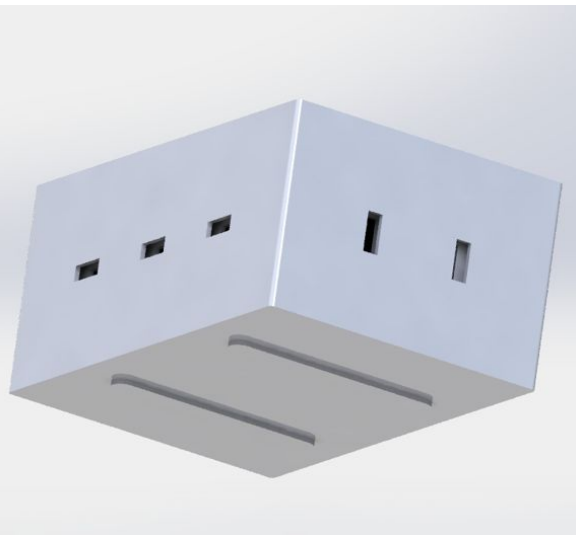
- ❑ **A 7 port USB Hub**
- ❑ **A bracket for vertical as well as horizontal mounting**
- ❑ **A bracket for stacking three Hubs together**
- ❑ **Can survive vibration loading**
- ❑ **Can be used in temperatures varying from 0 - 25°C**



# ***Challenges***

- **Initial Design**
- **Deciding which material to use to minimize the vibrations**
- **Appraising the importance of each concept during concept generation**
- **Utilizing and improving on previous designs to create a USB hub which fulfilled the purpose of this project**

# *Summary*



**Thank You!**  
**Any Questions?**

