Recreational Vehicle

Accessory Roof Mounting System

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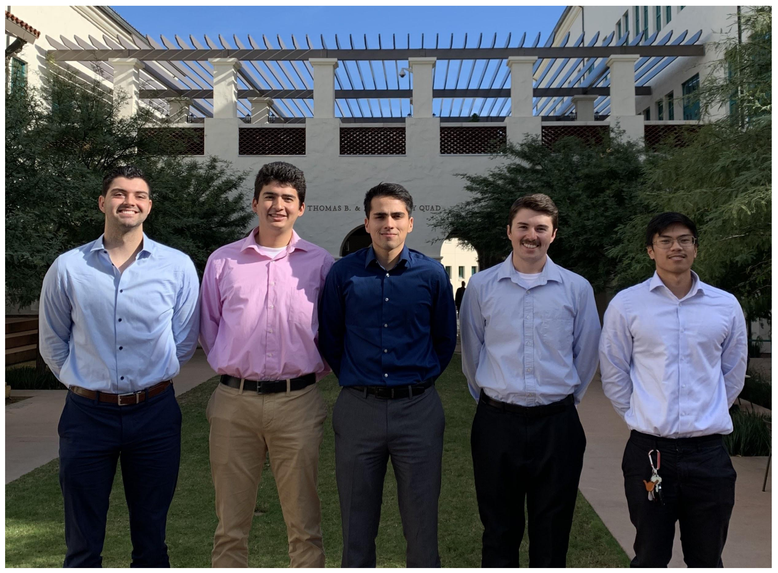
Abstract

Recreational Vehicle Accessory Roof Mounting System (RV ARMS) is a student generated and funded project with the goal of eliminating RV user frustration and minimize the overall required maintenance on any RV roof that the system is mounted onto. RV ARMS allows for various roof mounted accessories such as solar panels, satellites, and Wi-Fi extenders to be easily mounted and dismounted onto the system. The device is a stationary mount that can be adjusted based on the dimension of the accessory mounted.

Team



Team members go as follows from left to right: Bailey Ward, Martin Ahumada Padilla, Miguel Loza, Daniel Gutierrez, Austin Halog.

Means of Evaluation

RV ARMS was evaluated using the following team developed tests:

- Static Analysis
- Weather
- Vibration
- Time
- Aerodynamic
- Height
- Mounting
- Water Intrusion

Different means of testing were used to complete evaluation including FEA with SolidWorks, hand calculations, research, and physical testing.

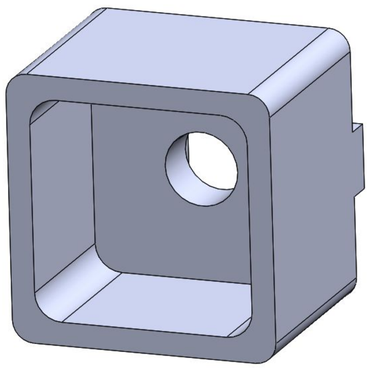
Manufacturing

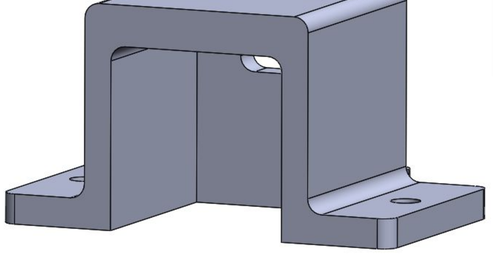
RV ARMS was primarily manufactured using:

- ProtoTrak DPM 3-Axis CNC Bed Mill
- Haas VF-2YT Vertical Mill Machine
- Circular Wood Cutting Saw

The team created a mock RV roof and assembled RV ARMS on top of the RV roof.

Team RV ARMS would like to thank SDSU and Michael Lester for allowing the use of the equipment in the Machine Shop.





System Specifications

- Maximum suggested bearing weight: 300 lbs
- Dimensions: 5’ x 2.5’ - 4’
- Weight: 46 lbs
- Weatherproof: Yes
- Telescoping Adjustability: Yes
- T-slot scalability: Scalable to accommodate different sizes of roofs