

## Senior Capstone Design

**Project:** *Marching Band Mobiliy Platform*

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**Team:** *The Beast*

**Date:**

*7/12/2019*

### Design Validation Plan & Results (DVP&R)

Requirement	Test	Test Subject	Target Date	Result	Recommendation
The total system with its tallest mounted instrument shall not exceed a volume of L 9 ft x W 7 ft x H 10 ft.	Measure the length, width, and height.	Fully functional prototype	9/30/2019		
The total system shall not exceed 500 lbf.	Locate a hydraulic bottle jack on a scale under the mass center of the system. Raise the system until the wheels loose contact with the ground. Record the value minus the weight of the bottle jack and any other support material.	Fully functional prototype	11/01/19		
The total system shall nominally translate at a pace of 160 steps/min and a stride of 23 in. (5.1 ft/s).	Place markers at the start and finish of a 50ft distance. Record the amount of time it takes to translate he total distance.	Fully functional prototype	01/01/19		
All wheels shall remain in contact with the ground under equal loading at all times.	Measure weight with a scale under each wheel with weight located in different locations on the platform.	Fully functional prototype	9/30/2019		
Individual wheels will deflect vertically enough to clear a human toe(3/4' - 1").	Run rig over test block af set height, ensruing deflection and continuation of movement.	Fully functional prototype	9/30/2019		
The PCS shall be designed with a capacity to operate the entire BMP for a minimum of 15 minutes on a single charge.	Operate system under max capacity on astroturf for a period of 15 minutes on a single charge.	Fully functional prototype	11/01/19		
The software shall be capable of receiving RC input signals from a maximum distance of 70 yards and input signals from the instrument-mounted sensors.	Operate the system using the remote control at a distance of no less than 70 yards.	Fully functional prototype	11/01/19		
Verfiy light system is full functioning.	Perform on the various insrtuments with lights turned on.	Fully functional prototype	11/01/19		