Project Title: HAULLELUJAH! A SOLUTION TO PACKING A U-HAUL!

Project Description: There are some common questions people ask when they move: "What size U-Haul do we need to rent?" "How should we arrange things in the U-Haul?" "Which box did we put [object] in?" Wouldn't it be nice if there was a system which could answer all these questions for you? We would like to develop a system which 1) keeps a record of all the things you plan to move, 2) determines what size U-Haul you will need to transport all of your items, and 3) gives recommendations on where to place boxes within the U-Haul to maximize space and minimize damage in transit.

Subsystems:

* Digital Tape Measure: Needed to accurately and quickly measure boxes and/or objects
* Digital Tape Measure Transfer: Needed to transfer incoming measurement data from digital tape measure to mobile application per Bluetooth module. (Part of PCB would be implemented here)
* Bluetooth: Needed as a medium to pass measurement data to mobile application. (Part of PCB would be implemented here)
* Mobile App: Needed as an interface to users to show efficient placement of boxes as well as relative weight of each box. The application will also interpret the incoming measurement data and maximize the boxes sizes to the packing area. Additionally, for users to know what is in each box they can either be given the option to utilize the camera and take a picture of the box contents or type out the boxes content. The latter option gives users an easy way to search for their items

* Battery/Power System: Needed only if we have to construct and build our own digital tape measure instead of using an existing one.
* Casing: Needed to protect the digital tape measure transfer and Bluetooth subsystems from any damage.

Criterion for success: We would like our product to be able to accurately measure boxes in a timely manner (preferably under 10 seconds). During that span of time be able to send data to the mobile application consistently with each data set referring to its specific box. After gathering all necessary data have the application tell us how large a U-Haul we need and have the app show us the most efficient way to fit the items in the designated space. We would like our product to keep track of all items and boxes as well as distribute the weight of the products in the trailer well. Additionally, we hope our design offers users a cheap, cost efficient way to store and pack their belongings in a moving truck. Moving can be a very laborious, time consuming task with our design we hope to make that process much faster.

Other Competition: There are a few mobile applications on the market that are used to keep track of a user’s inventory to tell them what items are in each box. Some of these products make use of the user’s smartphone camera and some do not. We find these applications to be a more cosmetic than informational to the users. However, currently there is no mobile application out there that gives specific measurements of moving boxes to the users. Additionally, there are a few companies that specialize in moving a user’s items for them. However, this solution is costly and workers may not take the proper precautions when handling a person’s belongings.

URL Link: <https://courses.engr.illinois.edu/ece445/pace/view-topic.asp?id=35720>