Group: The Mighty Potato

Statement of Work

Purpose:

This product will be designed to help the assisted living through advancing the Cal State San Bernardino University Kinesiology Department in their ability to take accurate force/balance readings outside of the schools lab. We will create a cheaper, viable, and more portable option than the expensive products currently in the market.

Scope of work:

The scope of work includes but is not limited to RaspberryPi, Python, load sensors, ultrasonic sensors, CAD, and circuits. Creation of a User Manual, Specification Sheet and other documentation is to also be delivered with the final iteration of the project.

Location of work:

The primary locations where all work will be conducted, posted and assigned will be on Github (code and final deliverables) and Discord (general discussion and general assignment). Any in person communication will take place on the California State University San Bernardino campus.

Period of performance:

There will be no limit to the allowable time for the project members. All project resources will be available online and thus open at all times. Any and all hardware related portions of the project will be assigned to group members and those personnel will have possession of the hardware for their allotted time.

Deliverables schedule:

The schedule of the product will revolve around the quarter system of CSUSB. All preliminary research, design, user manual, statement of work, and requirement specifications will be completed by the end of Fall Quarter; December 2nd 2019. Product prototype and refinement of documentation is to be completed by March 16th 2020. The product and any additional improvements will be finalized and ready for demonstration on June 8th 2020

Acceptance criteria:

The Jump/Balance mat will be compared to current commercial products that the Kinesiology Department uses for their projects and endeavors . For the product to be accepted, it must perform within a 20% margin of error of their currently used Jump/Balance mat.

Special requirements:

Portability - During the meeting with the department researcher the word “portability” seemed to be the main focus. They stated that they currently have a portable machine but its clunky and inefficient to move to an outside environment. So, this will be the main drive during the design of our product.

Miscellaneous:

Understanding how a force plate works - The Mighty Potatoes and another group have set up an appointment with the Kinesiology department to understand how they collect their data. With this we can have a more complete understanding of exactly what the client wants us to build.

The Design: Listed is the more technical/functional description of the design that may not already be stated above.

- The Jump/Balance mat will function primarily over a solid flat surface and due to the products rechargeable battery does not need to be plugged into a wall outlet.
- The Jump/Balance mat will output the users jump height, jump power, and center of balance after the user jumps on top of the mat.
- The projected dimensions is a 2' x 3' mat with a 3’’ bar that will contain the computer and battery component.
- The total cost of the development of the mat will be dependant on the amount that the group members can spare on the parts as well as any possible school provided grants