

π Meter



Austin Small and Tae An

Business Opportunity

1. With existing technology, the ability to measure the distance between two points with relative ease and accuracy does not exist.
2. The yardstick and tape measure, while both widely used, cannot account for curvature, are limited in their accuracy of measurement, and can be awkward to use.
3. Our product, which features an intuitive design, can measure the distance between any two points to an accuracy of less than 0.1cm at the click of a button.

Description of Product

- PiMeter is a device that can measure the distance between any two points within 50ft of the user, simply by targeting the two points in question with two laser indicators projected from the device.
- Although laser range finders, which determine the distance between a user and a fixed point, are quite prevalent, the idea of leveraging such technology to measure the distance between two fixed points has not been implemented.
- By knowing the distance from the user to those two points and the angle between those measurements, PiMeter makes use of the Law of Cosines to calculate the distance between two points. These two distances are determined utilizing laser rangefinder technology, while the angle is determined with a digital protractor.



Market Overview

- With our product, we intend to revolutionize the way distance is measured between two points, catering to both the DIY and professional construction market.
- Within this market, we estimate that there are 1.5 million potential customers. We arrived at this number because in 2011, there were reportedly 16 million professional and 10 million DIY home improvement projects. By extrapolating these numbers, there are 26 million potential customers. After reducing this value to 15 million to account for possible overestimation, it would be reasonable to estimate that 10% of that population, or 1.5 million people, will eventually become customers.
- With current distance measurement equipment selling for around \$300, the size of this market can be estimated to be \$450 million USD.
- The products most similar to ours can only measure distance between the user and a fixed point. Our product will differentiate itself by combining pre-existing technology in a novel way to enable an essential, but thus far overlooked function of measuring the distance between two points.

(Source: http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/harvard_jchs_remodeling_report_2013.pdf)

Development Plan

Laser

Exploration, improvement, and implementation of existing laser measurement technology and tripod accessory into our product development. (\$5000 over 2 months)

Protractor

Implementation of an internal digital protractor to measure the angle between the two rays of laser emission. (\$500 over 2 weeks)

Touch Interface

iPod's click wheel capacitative sensing and laser scrubbing sensitivity variation option (finer scrubbing at wider angles and variant scrubbing rates along the radius of the wheel). (\$5000 over 1 month)

Prototyping

Integration of prior work on laser, protractor and touch interface in a cost-effective and production-ready prototype. We are targeting the price range of \$50-\$100. (\$10000 over 1 month)

Team Bio



Tae An, born in South Korea, is a freshman at UPenn majoring in MEAM. He has interned as a blueprint developer at Energyen Corporation and taught AMC and AMIE in Korea. He is a board member for both the Penn Symphony Orchestra and Korean Business Society and is part of Wharton Undergrad Energy Group and Penn Social Entrepreneurship Movement. He has partnered with Austin as a co-owner and Vice-President of HaloCatBowl LLC. Tae also holds professional certifications as a magician, and in the future, Tae hopes to pursue an additional degree in economics and a minor in Chinese.

Throughout PennVention, Tae will leverage his experiences as a blueprint developer to serve as a product designer, as well as his entrepreneurial experiences to oversee the business operation.



Austin Small, a Philadelphia native, is a member of UPenn's Class of 2018, and is currently pursuing majors in EE, MEAM, and CS. At the university, he is also a member of the Penn Electric Racing club, and is involved in research with Dr. Daniel Lee, relating to robotics and machine learning. Austin is the founder and CEO of HaloCatBowl LLC. In his spare time, he enjoys snowboarding as well as taking advantage of his private pilot's license to explore the scenic East Coast.

Throughout PennVention, Austin will utilize prior experience in order to coordinate the overall business strategy as well as to handle the electrical and computer science aspects of engineering the product.