Application for 6.S078 – Entrepreneurship Project

Opportunity Areas

Our accomplished, enthusiastic team was assembled to have the traits necessary to build a successful hardware startup. After the past few weeks of brainstorming and preliminary market research, we have filtered our ideas down to three products that all fit our skill set and that we would love to create. We plan to spend the first two weeks of the class continuing to research markets and interview customers, as well as consult with the course's advisors in order to choose the product we will develop over the semester.

Potential Projects

1. Specific Molarity Solution Maker – Low-cost machine for preparing solutions with arbitrary molarities from stock chemicals. Automates the time-consuming process of calculating and carefully weighing out precise quantities of chemicals for making a solution, along with mixing and autoclaving. Markets include academic and small commercial wet labs.

2. Robotic Oxygen Tank Carrier – Robotic assistant for carrying medical oxygen tanks. The device maintains a specified distance from the user by following a signal generated on the users body. Incorporates a LIDAR system for obstacle detection and path planning. The product would enable greater independence and mobility for individuals who require oxygen tanks. Markets include hospitals, assisted living facilities, nursing homes, and medical rehabilitation centers.

3. Smart-Home Doorbell – Video camera, intercom integrated into doorbell system that allows the homeowner to see and communicate with whoever is at their door via an AV feed to a smartphone app. The user can then choose to unlock the door via the app to let the caller in. Adds convenience and security; would be very useful for package delivery that requires confirmation. Aside from general homeowners, marketable as an inexpensive upgrade to old apartment buzzer systems.

Projected schedule of deliverables

Selected product chosen based on preliminary research of above options	2/18
Typical customer and required features based on customer feedback of look-alike models	3/4
Work-like model with consolidated feedback from customer reactions	4/8
Initial business viability, market size, and manufacturing costs based on work-like and look-like prototypes	4/15
Prototype incorporating customer driven design and branding	4/29
Draft pitch deck and updated business strategy and market size based on prototype	5/6
Final presentation with alpha prototype	5/13

Team Members

Troy Astorino (AeroAstro, Physics '13) – **About:** Troy's interest in machine learning and robotics has led him to take classes from a wide variety of departments outside of his two majors. He participated in StartLabs' C2C program last IAP and firmly believes that startups can change the world through building profitable businesses around products and services. **Skill set:** Troy's experience with large software systems and his academic focus on probabilistic robotics will be used in building the software and sensor integration for the project. **Desired units:** 24. **Adviser's email:** kwillcox@mit.edu.

Turner Bohlen (Physics, '14) – **About:** While gaining technical knowledge and practice through classes and internships at startups, Turner has developed an intense interest in entrepreneurship as a method for bringing novel technology and exceptional design into the hands of the public. He is the director of StartLabs, a non-profit student organization dedicated to that mission. **Skill set:** Turner has significant experience in software and web development as well as team management, all of which will be put to use for this project **Desired units:** 12. **Adviser's email:** simcoe@space.mit.edu.

Craig Cheney (Mech. E '14) – **About:** Craig has pursued his interest in robotics throughout his career at MIT, most recently winning the 'Intro to Robotics' term project competition, "Robot Gymnastics". **Skill set:** His expertise in CAD, mechanical design, machining, and controls & instrumentation will be utilized in the physical design of the project, as well as the electronics system. **Desired units:** 12. **Adviser's email:** ihunter@mit.edu.

Gus Downs (Physics '13) – **About:** Gus has been heavily involved in experimental physics research across the country during his time at MIT, designing and building experiments to study ultrafast processes in quantum materials and efficient cooling of single atoms. **Skill set:** Gus's experience with circuit design and signal processing will be put to use designing the data acquisition and electronics system of the project. **Desired units:** 18. **Adviser's email:** vuletic@mit.edu.