Warren J. Baker Endowment
for Excellence in Project-Based Learning
Robert D. Koob Endowment *for Student Success*

PROPOSAL NARRATIVE

Dreamer Technologies' Home Automation System

I. Abstract

The home automation market has been growing rapidly over the course of the last few years, and it is expected to grow by 143% between 2015 and 2022.[1] In the next few years, the connected home automation system will come to fruition and there will be home automation systems for sale that allows users to control any home device seamlessly from an easy to use interface.

While there are many home automation companies already in the market, none of them have truly captured the idea of the connected smart home. All of the systems are lacking in some area, whether it be dependence on internet connectivity, or slow response time. And to this date there is no consumer-friendly system that is regarded as the standard for home automation. This market is growing quickly and we hope to use our knowledge of computer systems and computer programing to change and advance the home automation market.

II. Introduction

Dreamer Technologies is a technology company founded by David Lennon, Jordan Shaw, and Chandler Warne. Our goal is to be one of the leading names in the home automation industry. We are seeking a $5,000 grant to be able to develop a prototype of our home computing and automation system to compete in Cal Poly's Innovation Quest competition.
http://cie.calpoly.edu/prepare/innovation-quest/

The market for home automation has many players. However, of all the systems available, none have truly satisfied the customers' needs for a number of different reasons. Our goal is to do extensive market research in order to produce a product that creates gains and relieves pains for the customer.

III. Objective(s)

- Interview potential customers to identify their needs.
- Using the information from the customer interviews we will come up with a minimum viable product

1 Retrieved from http://www.marketsandmarkets.com/PressReleases/home-automation-control-systems.asp

- Create a fully integrated smart home system. Our system will be user friendly and have the ability to bring together all types of home automation devices into one easily usable interface.
- Develop a product and demonstrate the advantages of localized computing in smart home applications.
- Innovate new room-based home sensor solutions.

IV. Methodology

We will do market research by going out into the community to interview potential customers. The product we produce will be a result of these interviews. As for the production of our product, our electrical engineer David has been gearing up for rapid circuit board prototyping. With this setup, our company will be able to design, etch and assemble circuit boards in a 1-2 hour period. This quick turnaround time is vital in the design process, when circuit board designs that are sent out to prototyping companies would not arrive for 3-4 days. We will be able to iterate through several versions of a board in a single day. Our business will benefit greatly with this ability, and we will be able to meet our timeline goals much more easily. Chandler, our software engineer, will be responsible for the majority of the programming involved with the communication of devices and the designing of the user friendly interface.

V. Timeline

Our plan is to have a completed prototype ready by the application date for Innovation Quest on March 3rd 2017. To achieve this, we will do our best to stay true to the following timeline:

Customer development/Market research complete	- December 18th 2016
Wireless sensors chosen for design	- January 2nd 2017
Wireless sensors developed	- February 13th 2017
Home computer set up	- February 13th 2017
Demonstration video of smart home created	- February 27th 2017
Prototype Completed	- March 3rd 2017

VI. Final Products and Dissemination

Our final product will be a complete system of a number of different sensors that will communicate with a central hub that can be accessed from any smartphone, tablet, or computer. We plan on making our product a completely closed system and will not need to be connected to the internet in order to control and view your home features.

For the purpose of this grant, our end goal is to design a product to enter into the Innovation Quest competition. However, our ultimate goal is to develop our product to sell to customers. As of now, we have two plans for distributing our product. Our first plan involves selling directly to consumers as an add-on to their home. Our second route involves implementing our system into new homes. We will market directly to home developers and contractors. We will start in local in San Luis Obispo, and eventually branch out to home developers in suburban areas of San Francisco and Los Angeles.

VII. Budget Justification

The largest single blocker of the development of this smart home system is the cost of attaining a developer's license for Z-wave technology. After purchasing this license, we will have access to the Z-wave API, allowing us to speak to and use Z-wave devices with our home system. There are already thousands of Z-wave smart home devices on the market, so having that connectivity is vital to the legitimacy of our system. $3,000 of the $5,000 will be spent on buying the developer kits and licensees needed to utilize Z-wave communication between devices. The remaining $2,000 will be spent on other development expenses. Most importantly, we need to set up ourselves to be able to make very precise circuit boards. The only remaining component that we need for that process is a reliable laser cutting system. The cost of that can be reduced by purchasing a system that must be assembled. The laser cutter we have in mind would cost $500 for all parts and setup. The remaining $1500 would be spent on etching supplies for sensor development and a computer system to run our prototype smart home system.

PROPOSAL BUDGET

Student Applicant(s):	
Faculty Advisor:	
Project Title:	**Requested Endowment Funding**
Travel *subtotal*	**$0**
Travel: In-state	**$0**
Travel: Out-of-state	**$0**
Travel: International	**$0**
Operating Expenses *subtotal*	**$**
Non-computer Supplies & Materials	**$1000**
Computer Supplies & Materials	**$1000**
Software/Software Licenses	**$3000**
Printing/Duplication	**$0**
Postage/Shipping	**$0**
Registration	**$0**
Membership Dues & Subscriptions	**$0**
Multimedia Services	**$0**
Advertising	**$0**
Journal Publication Costs	**$0**
Contractual Services *subtotal*	**$**
Contracted Services	**$0**
Equipment Rental/Lease Agreements	**$0**
Service/Maintenance Agreements	**$0**
TOTAL	**$5000**