Lazy Bot Automations

Root Your Lifestyle

Smart Home Integration Technology

Request for Proposal

Version 1.2

January 16th, 2016

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Request for Proposal

Project Version 1

Document History

Version	When	Who	What
1.0	1/12/2017	LBA	Initial Drafting
1.1	1/15/2017	LBA	Second Draft
1.2	1/16/2017	LBA	Final Draft

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1.0 Product Overview

Lazy Bot Automations (LBA) aims to improve and optimize the in-house living experience for all homeowners and businesses by means of our suite of smart home and office appliances. In addition to our products, we have recently acquired a number of competing brands who carry their own variety of home automation devices. All our devices, including those recently acquired, are capable of networked communication, and can be controlled through unique individual mobile applications; however, they currently lack a platform that allows inter-device communication, thereby preventing us from providing a truly smart and integrated end user experience.

We require all our products to be consolidated into an all inclusive universal system, allowing users to easily control all their LBA devices through one platform, and gradually allow our suite of products to better serve its end user's behaviors and needs.

2.0 Project Objectives

The Smart Home Integration project should satisfy the following needs:

- Allow all current LBA devices to communicate between each other
- Allow users to interact with all LBA devices from a single mobile platform
- Allow LBA devices to learn, adapt, and replicate usage behavior of LBA devices
- Minimize power consumption by optimizing device usage
- Reduce complexity and increase user satisfaction in the use of LBA smart devices
- Must be forward compatible with future smart devices
- Applicable to all LBA devices used in both residential and business avenues.

Single Platform Integrating All LBA Devices

Users should be able to interact with all their LBA devices remotely through external media devices. They should be able to turn devices on, change device parameters and settings, initiate pre-defined routines, and configure any other available options. The platform should also provide an overall view of the current status of all LBA devices owned by the user.

Learning and Replicating User Behavior

Devices should be able to learn and replicate regular user behavior or pre-defined user routines, thereby operating autonomously when asked. Devices must be capable of communicating amongst each other and

execute user routines in tandem, maintaining a high level of security and safety amongst the household or workplace when doing so.

Optimizing Device Usage and Minimizing Power Consumption

Devices should be capable of learning optimum power usage levels for regular user routines and apply them accordingly to minimize power consumption. Devices should also enter a power saving mode when not in use; however, they should still be aware of user communication to facilitate "waking up" the device when required.

Forward Compatibility with Future Smart Devices

As LBA is currently expanding and there is potential for future acquisitions, the requested system architecture must be designed to be flexible and configurable with other newly acquired smart products. A user should be able to use the same platform to connect and control the newly acquired devices with no discomfort.

The Smart Home Integration project should increase user satisfaction by allowing automation of simple tasks that are often time-consuming or otherwise demanding or inconvenient. It should help us provide an intelligent user-friendly in-house system that reduces both utility costs and end user frustration currently present when using existing individual smart appliances from a variety of vendors.

3.0 Current System(s)

No current system exists at LBA that allows integrated control and usage of all LBA products and services from a single platform. Each LBA device boasts variants of Unix based operating systems, network capabilities, and control through proprietary mobile applications. After our recent acquisitions, the LBA range of products now encompass a spectrum of intelligent home appliances and automation devices including:

- lighting systems
- home security systems
- heating and cooling systems
- kitchen appliances
- home entertainment systems

4.0 Intended Users of the System

The platform provided by the system is intended to be used by:

- Residence owners
- LBA maintenance employees/developers
- Businesses

Homeowners will be the primary beneficiaries of the new system. Users will use the platform to control all their LBA devices from anywhere inside or outside of their home. For example, users could choose to set predefined routines on their home security systems to lock all doors and windows, and secure the residence upon them leaving the premises. They could also use the system to configure the central heating or cooling unit accordingly prior to them arriving home from work, or subscribe to weekly updates from the fridge management system on the current status of their inventory. They could even configure the home entertainment systems to play blues music during dinner or remind them to watch their favourite hockey game every week.

Upgrades and repairs will be needed periodically with the emergence of new products, firmware, and integration with other intelligent services. Therefore, LBA maintenance employees must be given special permissions to access and perform upgrades within the system. LBA developers and management must also have higher order privileges allowing access to source code in order to continually perform application updates as the market, as well as the LBA product range, grows.

Businesses currently using LBA products would also benefit from the system. Small to medium businesses could cut down utility costs by managing their office lighting, heating/cooling system, etc. through the learning and power consumption optimization feature of the system, as mentioned in section 2.0.

5.0 Known Interaction with Systems Within or Outside the Client Organization

The system should be able to gather user and device data from the database currently used by existing proprietary mobile applications, for each individual device. The system will need to interact with the various utility infrastructures present across different regions. This can be used to notify users of important information such as utility bills, and provide them control over their usage of these services. The system will also need to interact with existing smart home devices, as well as any smart home devices the user installs in the future. The system should also provide secure interfaces to LBA R&D, in order to facilitate building customer targeted applications using customer behavior data from LBA devices.

6.0 Known Constraints to Development

This project has three development constraints that are required for the finished product to meet LBA's standards. These three constraints are: budget and timeline, response time, and platform compatibility.

Budget and Timeline

The budget for this project is $50,000. This includes the costs for requirements engineering, design, prototyping, and demonstrations. Development should be concluded by February 24th, 2017.

LBA Device Response Time

All LBA devices should respond to commands from the system within 500ms. Any further delay would not be acceptable.

Operating System Compatibility

The platform must be accessible via all media systems running current popular operating systems including IOS, Android, Windows, etc.

7.0 Project Schedule

The following table details the project's proposed timeline.

Milestone	Deadline	Duration	Responsible Party
Request for Proposal	January 16, 2017	4 Days	LBA
Meet About RS	January 19, 2017	1 Day	LBA/Developer
Requirements Specification (RS 1.0)	January 30, 2017	2 Weeks	Developer
Designer Report 1	January 30, 2017	2 Weeks	Developer
Read and Discuss RS 1.0	February 2, 2017	3 Days	LBA
Meet About RS 1.0	February 2, 2017	1 Day	LBA/Developer
RS 2.0 Draft	February 23, 2017	3 Weeks	Developer
Read and Discuss RS 2.0	February 23, 2017	1 Day	LBA
Requirements Specification (RS 2.0)	February 24, 2017	3 Weeks	Developer
Prototype Demonstration	February 24, 2017	3 Weeks	Developer
Designer Team Report	February 25, 2017	3 Weeks	Developer
Client Report	February 25, 2017	3 Weeks	LBA

8.0 Project Team

LBA can be contacted by email at rafatm@uvic.ca.

Name	Role	Email
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9.0 Glossary of Terms

Term	Definition
LBA	Lazy Bot Automations
Networked Capabilities	Capability of a device to communicate through any established networking e.g. internet, telecommunication networks, satellite, etc.
Operating System	The software that supports a computer's basic functions, such as scheduling tasks, executing applications, and controlling peripherals.
R&D	Research and Development
RS	Requirements Specification