Stolen Object Tracker

Cycle 1 Report

By

Charles Baker

Nathan Plotts

Leo Reyes

Steven Whaley

Submitted in partial fulfillment of the requirements for  
COMP 4710 Senior Design  
to the Department of Computer Science and Software Engineering,  
Samuel Ginn College of Engineering, Auburn University

Auburn, Alabama

March 4, 2014

Table of Contents

[2 Executive Summary (System Metaphor) 5](#_Toc381308278)

[3 Project Introduction 6](#_Toc381308279)

[3.1 Previous Development 6](#_Toc381308280)

# Executive Summary (System Metaphor)

By: Leo Reyes

When an object is stolen, it often never makes it back to its owner. Although there are other tracking devices currently on the market, our product provides more data about the thief than a regular tracker can, and also provides a user-friendly online interface for viewing device related updates and managing user accounts.

There are two different tracking device options. The first is a laptop application that runs in the background, hidden from the user. When the laptop is stolen, the application can gather information from its environment and use this information to locate and retrieve the laptop, this information includes their IP addresses as well as a record of their keystrokes.

Another tracking option available is a GPS tracking device. This device is small enough that is can be placed inside most commonly stolen objects and will activate when notified by the owner.

            A user-friendly online system, with a simple account registration and login, is available to device owners. When a device is stolen, the owner can easily activate the tracker by logging into the online system. The owner of the device can view location updates on a map through the online system, along with data related to specific devices including logged keystrokes and IP addresses. Support is also provided for registering and managing multiple devices.

# Project Introduction

By: Denney Burkholder

Over the past four weeks, our team has been working on creating a recovery program to track objects that are stolen without alerting the thief that he or she is being monitored.

We are designing for laptop computers and an object location device.  The goal for our project has been to create a product that will allow our customers to view their locations through our website, along with other information that may prove useful to recovering the device.  The need for a product such as this is undeniable when looking at the recovery rates for expensive devices (such as laptops, mobile phones, and tablets) once they have been lost/stolen.  Anyone who owns a desirable device can fall victim to thievery.  As such, they are our intended clientele.

By logging on to our user-friendly web application, the customer will be able to register their devices and access different information depending on the type of device.  For laptop computers, we have created a key logger that will be remotely activated by our server once the device has been reported missing on our website.  It runs in the background of the laptop, so the thief will not be aware that information is being gathered.  This file will be sent to our server whenever the laptop can get an Internet connection through available Wi-Fi networks.  The files can be viewed and downloaded from our web application. Our object location device is a self-aware tracking device.  It has GPS capabilities and an accelerometer allowing it to transfer its location along with the speed with which it is traversing to our server for viewing on our web application.  It communicates through cell towers, so a Wi-Fi connection is not necessary.

 Implementing our project involves many different components.  We have designed and coded a central server, database, applications for gathering data on laptops and web pages for communicating between the stolen devices and customers, and storing relevant information for recovery.

## Previous Development

By: Charles Baker

Previous development was performed in the architectural spike phase. Development was focused on the server and Windows service. Goals for the architectural spike were to get the most important features to a point where it was evident we could continue development without any major problems that may cause us to miss our final deadline.

Goals for the server were to get most planned functionality working in a basic state. The server was designed in 2 primary parts, the application server and web server. Goals for the web server included: embedding Google Maps into a page, setting markers on the map, and connecting to the application server. Goals for the application server included: communicating with the Windows service, communicating with the database, communicating with the web server, and moving data between different connections on request. The goal to connect the web and application server was not met.