Security Methods for the Mobile Android Platform
TJHSST Senior Research Project Proposal
Computer Systems Lab 2009-2010

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Period 4

October 27, 2009

1 Purpose

The goal of the project is to develop additional locking techniques for the Android mobile platform. These techniques include facial recognition, capacitive signature recognition, handwriting recognition, voice recognition, typing recognition, and a keyboard password. The project will be judged based on its ability to correctly implement these techniques, and not the effectiveness of the techniques themselves.

2 Background

There is little prior research done on this project as the android platform is not even one year old yet. A project called Biowallet had a similar goal but has failed to complete the application. Formal papers dealing with the platform are scarce, so most background information will come from developer groups, especially the XDA Developer Forum, the main android collaboration site.

3 Procedure and Methodology

3.1 Languages

This project is not as straightforward as algorithmic development, since it will require both modifications to the operating system as well as development of an application. The operating system is based on linux, and will require modifications to files written in C, Python, Bash, and possibly assembly. The application will require knowledge of Java.

3.2 Testing

Android provides free virtual devices along with their Software Development Kit (SDK). Unfortunately, I will not be able to utilize touch or camera input from that interface so much of my testing requires a physical Android device. For this, I will use my HTC Dream, the original Android phone.

4 Expected Results & Value to Others

4.1 Results

If the project is completed successfully, a user will be able to lock their phone using a variety of biometric and other input techniques, guarding against exposure of sensitive information.

4.2 Distribution

Upon successful completion of the project, the application will be distributed to the Android community in one of the following three scenarios:

1. If no operating system modifications are required, it will be distributed through the official Android Market for applications.

2. If few operating system modifications are required, it will be distributed through the official Android Market, but only for users who have rooted (obtained root access to) their phones.

3. If many operating system modifications are required, it will not be distributed through any online market. Instructions for modifying an Android phone and installing this app will be provided on a separate website.