

## Abstract

Our project was the design and implementation of a biometric security protocol. The motivation for our project stems from two simple observations: firstly, the need for straightforward authentication mechanisms has become increasingly apparent in the digital age, where issues regarding privacy are at the forefront of our discourse; and secondly, that security systems are only as strong as their most secure passwords. This second observation often results in strict password requirements, like the inclusion of special symbols that make passwords very difficult to remember. Additionally, difficult-to-remember passwords are more likely to be reused<sup>[3]</sup>, which creates yet another problem. We opted to adopt biometric technology into our system because of the comparative difficulty of compromising biometric information.

We decided to make use of the Android platform for its fingerprint scanner support and its many accessible APIs. We created two software applications—one for the Android phone (which acts like a key), and one for a secure piece of hardware (which acts like a lock). A user can unlock devices simply by opening our app, connecting to a device, and verifying his/her fingerprints. In our demonstration, the ‘lock’ was a simple Java server application.