Securing Biometrics Using Intel’s SGX Enclave Technology

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Outline

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Goals and objectives

This project protects the biometrics system even if the machine and/or its operating system are compromised. This would include:

1. Protecting the data coming from the biometric scanner
2. Protecting the sensitive biometric data while residing in memory or in local storage
3. Protecting the integrity of the code that processes the biometric data
4. Protecting the system from physical or remote attacks
Achievements and outcomes

- Using SGX technology, we were able to protect the important operations performed by the system as well as user’s data inside SGX’s enclave.

- Successfully built a secure architecture for biometrics authentication systems that provides end-to-end protection of the biometrics was achieved.

- FAR value is 16%, FRR value is 15%, and the accuracy of the system is 84.5%.

- The accuracy of the system is not high because the matching algorithm used was very basic and SGX restrict incorporating of external libraries.
Post Projects Plans

- Improve accuracy of the matching algorithm.
- Improve system performance.
- Consider potential commercialization.