

# Capacitive Swipe-Based Smartphone User Authentication

## Abstract

Weaknesses in smartphone security pose a severe privacy threat to users. Currently, smartphones are secured through methods such as passwords, fingerprint scanners, and facial recognition cameras, which suffer from several practical problems such as memorization requirement, shoulder surfing attack, poor lighting condition, etc.

To strengthen smartphone security, a capacitive swipe-based user authentication and identification method has been developed. Swipe is a gesture that a user performs throughout the usage of a smartphone. This methodology authenticates a user by capturing a series of capacitive frames of his/her swipe gesture and then applying machine learning techniques.



## Market Application

- Continuous user authentication in smartphones
- Point-of-entry user authentication in smartphones

## Benefits Over State-of-Art

- Requires no memorization like PINs, passwords, or patterns
- Robust against shoulder surfing attack
- Requires no additional hardware or dedicated sensors, just the capacitive touchscreen which is a key component in virtually every smartphone today
- Not affected by environmental conditions such as lighting levels.

## Stage of Development

Laboratory demonstration

## Intellectual Property Information

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