### Introduction
BYOD (Bring your own device)

OS-level support of BAS

ISO-produced BioAPI Framework

Passwords are obtainable

Biometric data is permanent, personal

### Goals
Cross-platform attendance tracking app

Uses fingerprint as passcode, records GPS location

Ideal for verifying employee attendance at remote sites

Will use fingerprint scanner of user’s own mobile device

### Biometric Authentication Systems
Phase 1 – Enrollment

Phase 2 – Authentication

Privacy-preserving BAS systems use encryption (Hamming Distance) for heightened security

### Methods

#### Phase 1
- **obtain user ID**
- **obtain template**
- **create user object**
- **store user object in DB**

#### Phase 2
- **obtain user ID**
- **obtain object**
- **delete object**

### Existing BAS Technology
Apple Touch ID fingerprint recognition feature
Apple acquired AuthenTec in 2012
iPhone 5S introduced Sept. 2013

Android fingerprint scanning widespread in 2017, (though Android Motorola Atrix was first in 2011)

#### Results/Conclusions
Still need to implement cross-platform GPS location.

import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.app.Activity;
import android.content.Context;
import android.util.Log;
import android.view.Menu;

iPhone X release date Nov 2017
Includes Face ID. Some user complaints:
“It doesn’t like it when my hands are close to my face.”
“It’s slower overall than Touch ID, at least for now.”
“Sometimes it just doesn’t recognize my face.”