Push Notification Testing

Masters Project Proposal by
Rodger William Byrd
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Department of Computer Science
at the University of Colorado at Colorado Springs
School of Engineering and Applied Science

Committee Members:
Kristen Walcott Justice, Advisor
Committee Member 1
Committee Member 2

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2.1 Background

Previous research by Sultana[1] showed that some Android devices had delayed notifications on paired wearable devices. Her research was conducted by performing a small manual study measuring the time it took from calling a phone to the time the notification showed up on the wearable device. That research found that there were significant delays in some of the testing scenarios and they varied by device and operating system. Some of the potential causes noted in that research were missing patches and updates and limited available storage on devices.

2.2 Related Work

3 Proposed Work

The proposed work is to test push notificaitons in Android devices.

3.1 Initial Phase

Emulation This will involve using Android Studio to emulate and test notifications to determine what can cause delays. Use debugging tools to determine what can cause delays in notification in andriod devices and wearable devices.

Simulation Simulates criteria that may lead to delays, such has low storage, high memory usage, high processor usage to attempt to determine factors that can lead to delays. Review Android OS patching history to determine what fixes have been put in place related to notifications and wearable devices.

3.2 Second Phase

Test findings from initial phase on actual hardware.

4 Completed Work

4.1 Survey of related work

4.2 Capabilities of Android Studio

5 Tasks and Timeline

- Emulation of Android OS
  - Install Android Studio

  - Setup Andriod Studio environemnt
  - Choose operating systems to test
  - Build app to emulate push notifications?

- Emulation of Wear OS
  - Test capability of Android Studio to simulate interaction between mobile and wear environments

- Create automated test to test multiple scenarios quickly
  - Integrate test environment with Andriod Studio Emulator

- Possible downloadable app for real world testing
  - TBD

- Test bluetooth interference on notification delays

Bibliography

[1] Taniza Sultana. Wearable Devices: Smartwatch, Fitness Tracker adn Call Notifications Delay.