Ubiquitous and Mobile Computing

CS 528: Let it Goat

Matthew McMillan, JP Bulman,
Matthew Kaminski,
Weixi Liu, Chao Wang

Computer Science Dept.
Worcester Polytechnic Institute (WPI)
What problem this tackles

- Students buy expensive class materials
  - But it is only used for a single term
  - Even things like apartment furniture
    - Lifespan is longer than a year
- Now students can resell
  - Make some money back
    - Whilst helping other students buy at discounted prices
  - Safer - on campus
Related Work

- Letgo allows you to buy and sell locally. From vintage clothes, antique furniture to used books and retro games.

- Offer up let you know who you’re dealing with and message buyers and sellers securely from within the app.

- Decluttr is mostly for selling your CDs, DVDs, games, books and tech.
Importance

- Students need to sell their used things and buy another what they need, such as books, electronics, or utensils.
- Current solutions, like Craigslist, can be unsafe and with total strangers.
- Our app spend students less time to sell & buy in campus. It will suggest ‘safe’ locations only for WPI students.
Solution

- Let it Goat will provide a unified place to buy and sell items for both departing and soon-to-arrive students
Solution

- This app will allow students to buy and sell items using their existing WPI account.
Solution

- Let it Goat will suggest safe locations on campus to perform the transaction
Implementation Plan (Big Picture)

Programming Languages:
- Front-end: Java & Kotlin
- Back-end: Java || Python || Node.JS

Database: MongoDB

Platform: Android Studio

Web service: Amazon Website Service

Authentication:
- Microsoft Azure Single Sign On (SSO)
- or Central Authentication Service (CAS)
- or crawler from bannerweb.wpi.edu
Implementation Plan (Details)

Android Modules may use:
- Activity & Fragment
- RecyclerView
- MediaPlayer
- mongodb:stitch-android-sdk
- com.google.android.gms:play-services-location
- ...

Database
- MongoDB Atlas
  - MongoDB Stitch Application
Timeline

Nov. 7
- Mock-ups finished
- Basic home screen for buying items started
- Database for items being sold on the market started

Nov. 14
- User database created
  - A few admin logins added to table
- Populate home/buying items screen
  - Put dummy items in DB table

Nov. 21
- User login works
  - Makes sure they have a @wpi.edu email
Timeline

Nov. 28
- Selling item view created
  - Adds items to DB

Dec. 5
- Pickup location feature added
  - Use geofences to make sure both people are in a WPI building

Dec 12
- User interviews conducted
  - Get a rating on different features
- All desired features have been implemented
- Paper written
Evaluation

- Focus groups for user testing
- Simulate scenarios for users
- Surveys to ensure important features are included
- Ensure Google’s UI Guidelines are followed
Points Tally

4 points: 5 android screens
4 points: Playback audio/video
4 points: Location sensing
4 points: Taking pictures with camera
6 points: Geofencing
10 points: Machine Learning

32 points total
Questions?
References

- https://developers.google.com/maps/documentation/android-sdk/start
- https://docs.microsoft.com/en-us/azure/active-directory/manage-apps/what-is-single-sign-on
- https://material.io/design/introduction/#principles
- https://offerup.com/
- https://www.letgo.com/en-us
- https://www.decluttr.com/