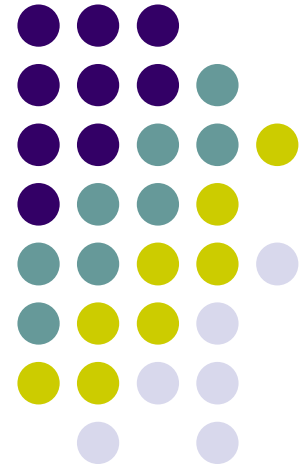


CS 4518: Mobile and Ubiquitous Computing

FeedYoSelf

“You don’t want to starve, do you?”

Nicholas Bradford
Kenedi Heather
Dan Seaman



WPI

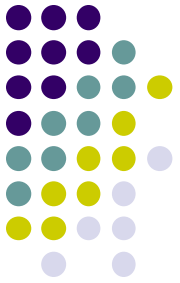
*Computer Science Dept.
Worcester Polytechnic Institute (WPI)*




Motivation

- **Our problem:**
 - There's often free food available during campus events (1-2 times per week), but it's difficult to track where/when
- **Why it's important:**
 - Event coordinators acquire more attendees
 - Less food waste (most events end up with leftover food)
 - Students with more nutrition leads to higher academic performance
- **Summary of the application:**
 - Scan emails to report when food is available.

Examples



Reply Reply All Forward

 Ben McMorran <bjmcmorran@WPI.EDU> | imgd-majors@WPI.EDU; n

FREE FOOD AND CS HELP RIGHT NOW - Fuller Commons

Action Items

Social Committee presents
Winter Carnival: Star Wars Edition
11:00 AM -- 4:00 PM
Morgan Wedge [Click for more info](#)

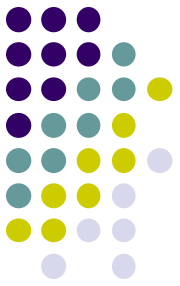
Office of Sustainability presents
#discussingreen - Food Insecurity in ...
12:00 PM -- 1:00 PM
CC Midcentury Room [Click for more info](#)

Office of Student Aid & Financial Literacy presents
Investing
12:00 PM -- 1:00 PM
Campus Center, Odeum B [Click for more info](#)

Humanities & Arts Department presents
Brown Bag Holiday Concert
12:00 PM -- 1:00 PM
Alden Hall [Click for more info](#)

Get Involved! presents

Methodology



- On startup, download emails from previous [14] days
 - Requires user action/authentication
- Use NLP to extract event type, date, time, and location
 - Named Entity Recognition (NER)
- GPS automatically turns app off when away from WPI
- Map with pins for today's food locations



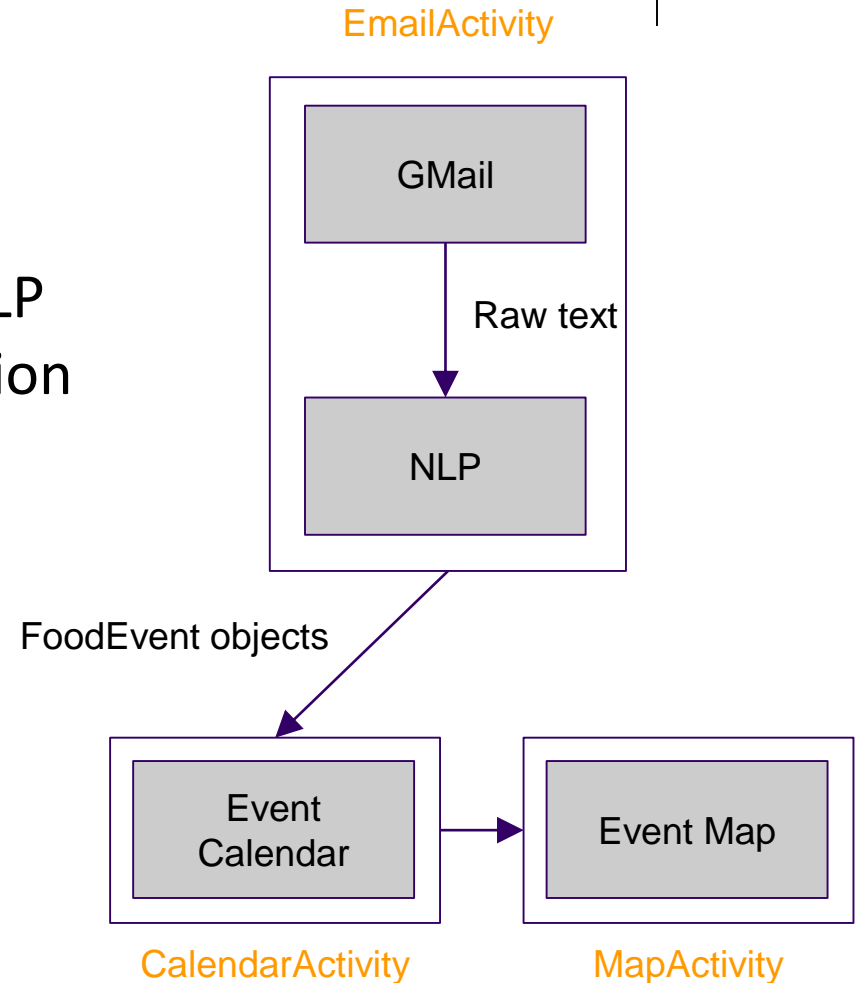
Implementation

- **Modules**

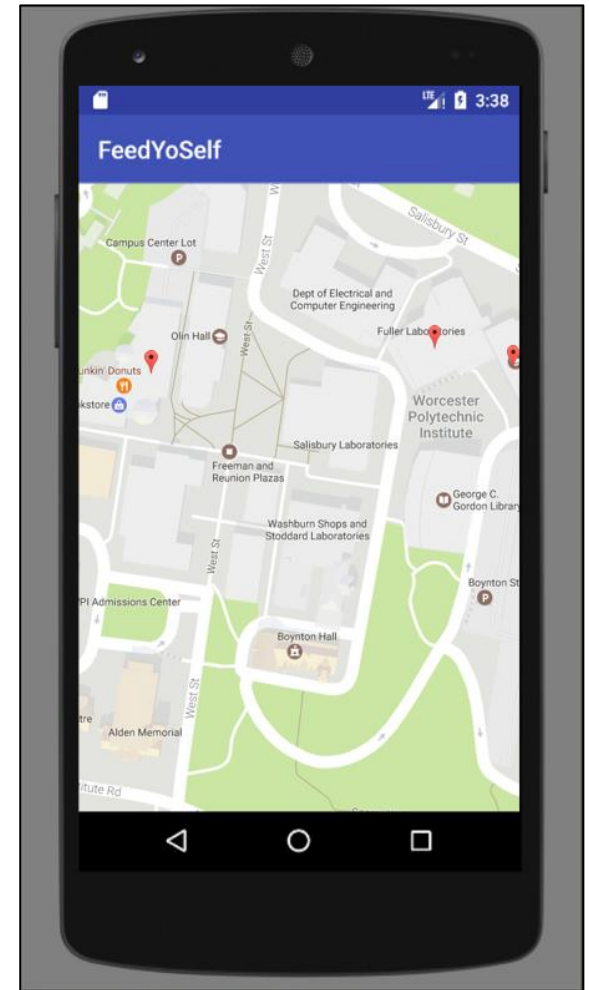
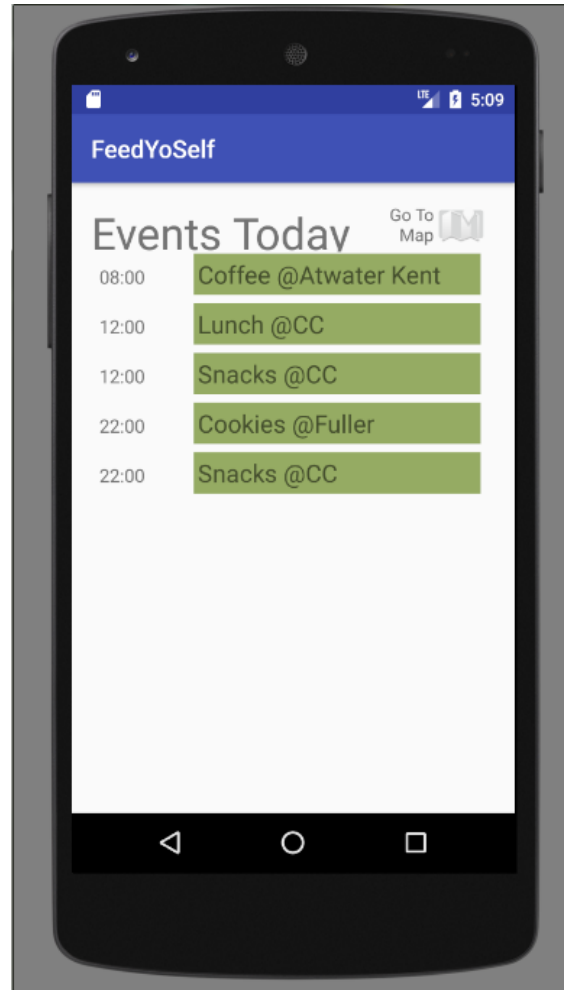
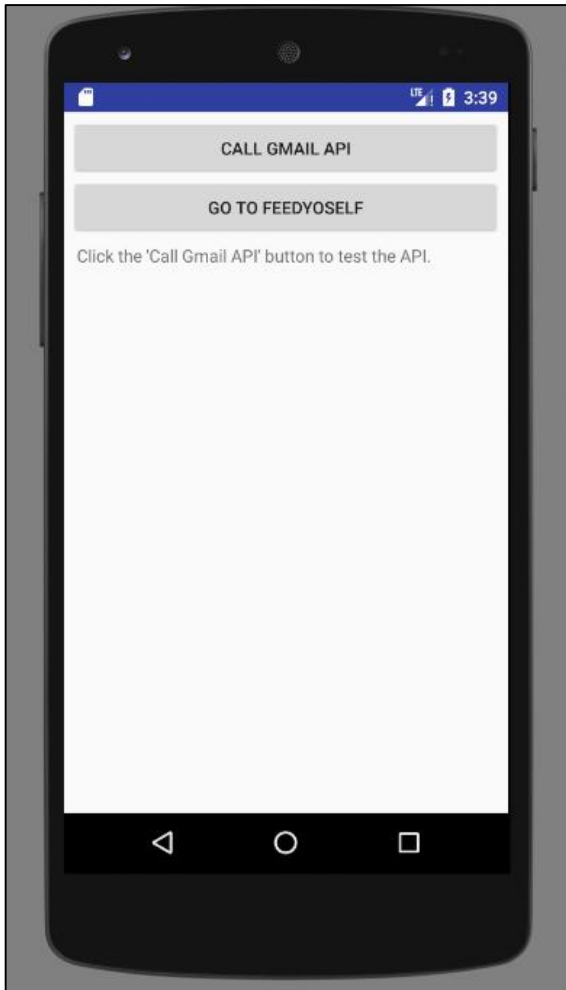
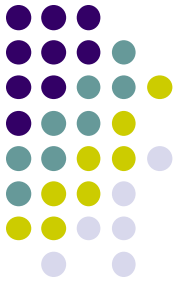
- Email: Gmail RESTful API
- NLP: rules, Stanford CoreNLP
- Google Play services: Location
- Google Maps API

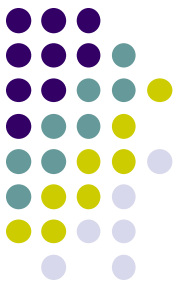
- **Considered Modules**

- OrgSync
- Outlook RESTful API
- Weka Machine Learning



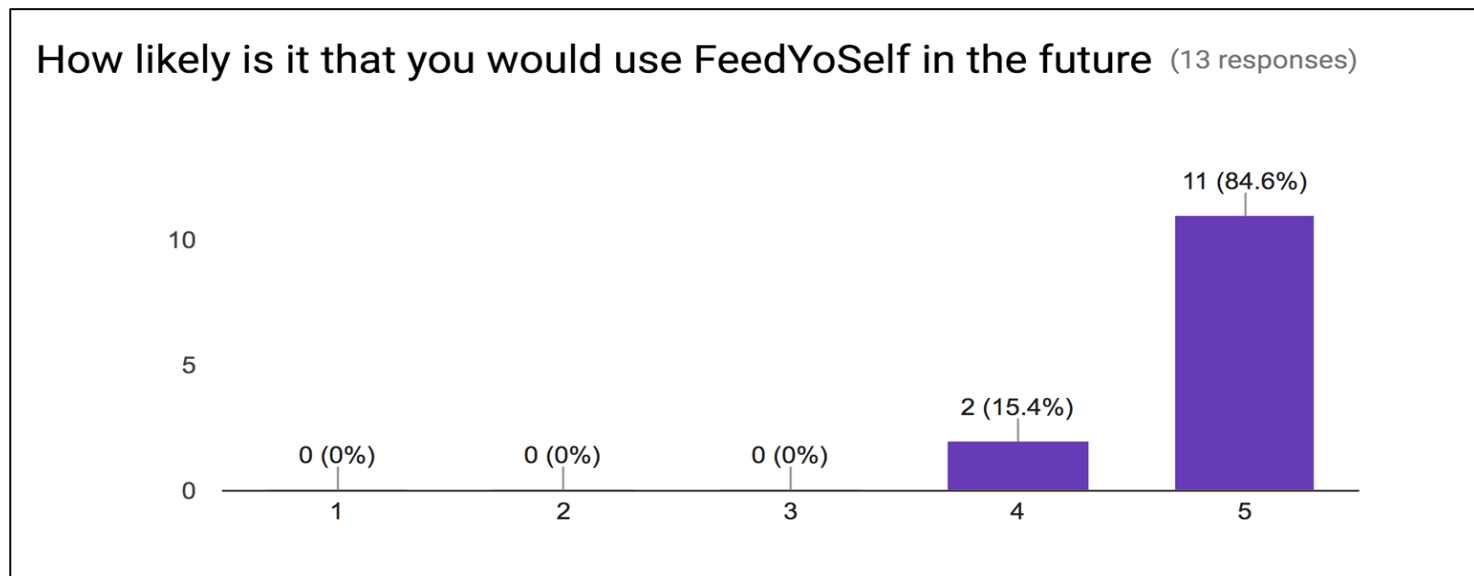
Interface

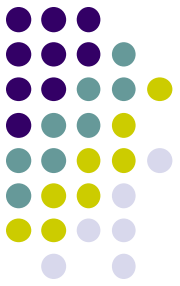




Evaluation and Customer Feedback

- NLP has many edge cases (currently ~80% accurate)
- Google Survey after testing
 - >90% User satisfaction with UI design
 - “This is dope. I’ve wanted this for a while.”
 - “Push notifications would be really useful.”
 - “Not sure why I would need a map - I know where everything is.”





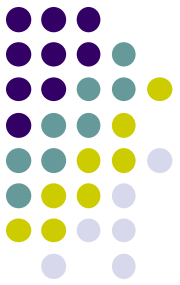
Business Model

- **Growth: Expand to other colleges, cities**
 - Marketing: appeal to thrift and hunger (red and orange make you hungry)
- **Revenue Model**
 - Show small ads to users (food-related such as restaurants)
 - Sell event ads to event planners (principles from Google AdWords)
- **SWOT Analysis**
 - **Strengths:**
 - Food is at base of Hierarchy of Needs
 - customer interest and first-mover advantage
 - **Weaknesses:**
 - limited by number of food events
 - **Opportunities:**
 - integrate with services, RSS feeds, etc.
 - expand to free swag, etc.
 - **Threats:**
 - low barrier of entry for competitors



Future Work

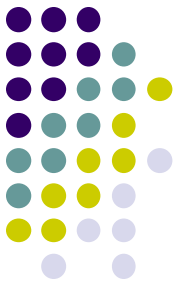
- Clean up UI
- Event Detail view, or Calendar integration
- Run in background and send push notifications
 - Non-trivial due to permissions
- Integrate with RSS feeds, WPI OrgSync, ...
 - Need support from WPI for API key



FeedYoSelf

“You don’t want to starve, do you?”

Thank you!



References

- APIs:
 - Google Maps API: <https://developers.google.com/maps/>
 - Gmail API: <https://developers.google.com/gmail/api/>
 - Stanford CoreNLP: <http://stanfordnlp.github.io/CoreNLP/>
 - OrgSync <https://api.orgsync.com/api/docs>
 - Weka <http://www.cs.waikato.ac.nz/ml/weka/>
- WPI Logo: https://www.wpi.edu/sites/default/files/inline-image/Offices/Marketing-Communications/WPI_Inst_Prim_FulClr_PREVIEW.png
- Color and Hunger: <https://spoonuniversity.com/lifestyle/apparently-red-and-yellow-make-you-hungrier-than-other-colors>
- Student Nutrition and Academic Performance: Mickey T. Trockel MS, Michael D. Barnes PhD & Dennis L. Egget PhD. (2017) Health-Related Variables and Academic Performance Among First-Year College Students: Implications for Sleep and Other Behaviors: *Journal of American College Health*: Vol 49. Retrieved February 12, 2017, from <http://www.tandfonline.com/doi/citedby/10.1080/07448480009596294?scroll=top&needAccess=true>