Campus Planner

Gitesh Shah Russell Panella Jeff Scheurich

Motivation

- Create a scheduling system that is lightweight, robust, and unobtrusive for mobile devices
- Utilize alternative methods of position querying
- Provide predictions for time needed to arrive at events

Lightweight needs of mobile devices

- Large GUI based programs unattractive option
- Software based planners and schedules should run in the background and only notify the user when needed
- Screen resources on mobile devices are limited and should be used sparingly





Functionalities

- Allow users to input list of events, and method of transportation to the location
 - Simple text format provides ease of use
 - Events can easily be transferred from a laptop to mobile devices
- · Give alerts for events
 - Based on time needed to reach destination
 - Give five minute and two minute warnings for the departure time of the event
 - Give warnings that the user will be late arriving





How does it work?

- Java based
 - J9 virtual machine
- Place Lab (<u>www.placelab.org</u>)
 - Spotter, CentroidTracker, Mapper, BeaconMeasurement, and TwoDPositionEstimate are used to get an approximation of the current position.





Similar mobile software

- MS Pocket PC Applications
 - Calendar
 - Tasks
 - AgendaFusion 7
- Palm
 - Calendarscope



Major flaw: Lack of incorporating the mobility (Location awareness) of the mobile device!!!!

Development of Location Aware Software

- Use location to predict time to arrive at events
 - GPS, wireless access points, cell towers
- Calculate when user is notified of events based on speed of transportation
- Allow certain events to occur in specific locations only
 - Have different reminders depending on the location of the user

Our Progress

- Developed a program capable of running as a daemon
 - non-intrusive. Only pops up a window when an event occurs
 - If the user chooses they can see addition information about their schedule
- Notify users of events and when they need to leave
- Allow easy input of personal schedule through text file

 Simple design allows for interaction across multiple platforms, such as from laptop to mobile device
- Give details about upcoming events the user should be aware of
 - Show when and where they need to be and display personalized descriptions for each event

What have we learned

- There are a large number of wireless access points active on and around campus
 - Using them to determine position works well
- These can be utilized to get a precise approximation of the users location
 - Based on how detailed the location information is for each AP
 - Herecast is a good example of this. The program is only as good as the user data provided for each AP found.

	ann	IEU				
🎢 Where Am I? 🛛 🗱 🐗	5:26 🛞		🎊 Where	e Am I?	₩ 4€ 5:2	4 🤅
Country: Canada Province: Ontario City: Condon Ottawa Toronto	• • •		City: I Area: Optional within th or busine borough	London, Ontario LWC . Can be used e city; for exan ess campus, city , or neighbourh Change Cit	o, Canada to specify an a sple, a universi y division, distr ood. y Next >	▼ ity ict,
123 1 2 3 4 5 6 7 8 9 Tab q w e r t y u i i CAP a is d f o h j k Shift z k c v b n m , Ctláti ` \ Scanner			123 1 2 3 Tab q w CAP a s Shift z > Ctl áŭ ` Scanner	34567 erty dfgh cvbr	890 - uiop jk1; m,	
	Mhere Am J Building:	I? # ◀€ NatSci	6:37 🚫			
	Street Address:	Middlesex Dr				
	Floor:	1	•			
	Location:	Nucleus				

Recommendations

- Take into consideration the limited memory of mobile devices
- Make good use of already developed applications
 - Place Lab provides examples on how to estimate the users location and provides data structures that can be used in development to provide the same functionality to other programs

Conclusion

- Developing software for PDA's is painful and slow
- Wireless coverage is still not good enough to anticipate constant internet connectivity which limits interactivity