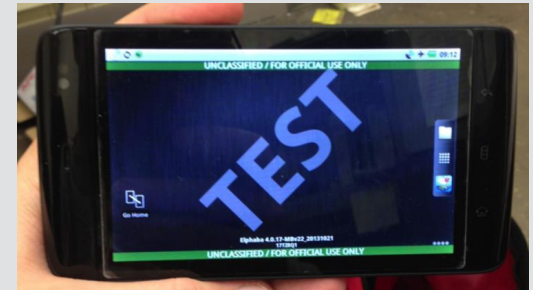




Performance Testing and Evaluation of Transformative Apps Devices

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Agenda



- Intro to Transformative Apps
- NIST Testing
 - Marketplace for Apps
 - Handheld Apps
 - Client-based Apps
 - User-centered Testing
- Future Device Testing
- Questions



Transformative Apps



- DARPA Funded
- Develop range of military-relevant software applications (apps)
- Enhance operational effectiveness



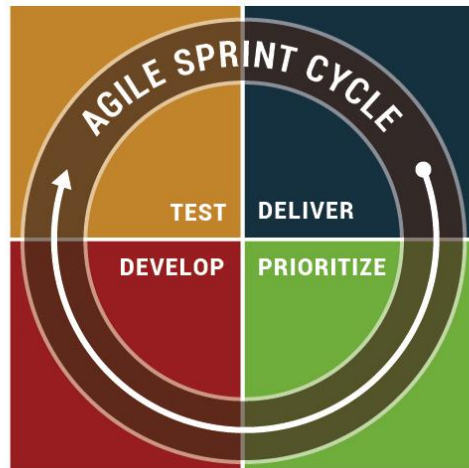
Transformative Apps: Trans Apps

Goal:

- Integrated multi-layered solution
- Rapid fielding and updates
- Direct end-user input

Program Scope:

- Secure Android software stack and infrastructure
- App Vetting Process
- Imagery Tools
- Agile processes



































NEW RELEASES

FEEDBACK, STATS



Trans Apps Applications

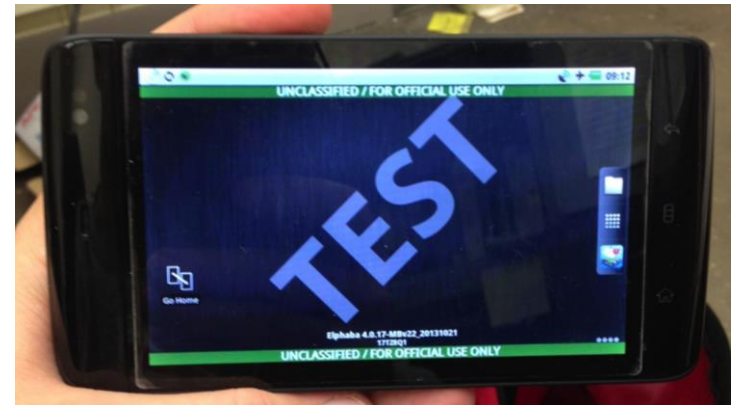
	PLI  BLUE FORCE TRACKING		Maps HIGH RESOLUTION IMAGERY WITH OPERATIONAL OVERLAYS		WhoDat VIRTUAL LINEUP/BOLO		WAM WEAPONS AND MUNITIONS GUIDE
	Tactical Radio Control  VIRTUAL KEYPAD DISPLAY FOR TACTICAL RADIOS		MapDraw TACTICAL MAP GRAPHICS DRAWING AND EDITING		Trip Ticket PERSONNEL AND INVENTORY TRACKER		Forms CREATE AND SAVE FORMS
	Chat  TACTICAL CHAT		Blackbox GEO-REFERENCED MEDIA AND REVIEW OF HISTORICAL TRACES		Light Data LOCAL ALMANAC INFO		OBLOC OBSERVER LOCATION. FOR FIRE SUPPORT
	Wolfhound  INTUITIVE WOLFHOUND DISPLAY		Media Collector COLLECT PICS, VIDEO, AUDIO, NOTES		BallisticInfo BALLISTIC CALCULATOR FOR SNIPERS & SPOTTERS		TSE TACTICAL SITE EXPLOITATION
	TIGR EVENTS, REPORTS, COLLECTIONS		NavTool SHARE PLAN & EDIT ROUTES		RED BLAST AND FRAGMENTATION DISTANCES		Glideline HIGH ALTITUDE JUMP TOOL
	Debrief MISSION WRAP-UPS		Green Notebook NOTEPAD		AC0Z ZULU TIME AND JULIAN DATE FOR COMMS SYNC		GammaPix RADIATION DETECTION
	Language Games ACTIVITIES FOR LEARNING EASTERN PASHTO, SOUTHERN PASHTO AND DARI PHRASES		Distance + Bearing TOOLSET FOR QUICKLY MAKING MISSION-SPECIFIC MAP CALCULATIONS		TransHeat HEAT MAPS OF PRIOR MISSIONS FOR PATTERN ANALYSIS		RIED RECOGNITION OF IMPROVISED EXPLOSIVE DEVICES

Icon Key

 REQUIRES NETWORK

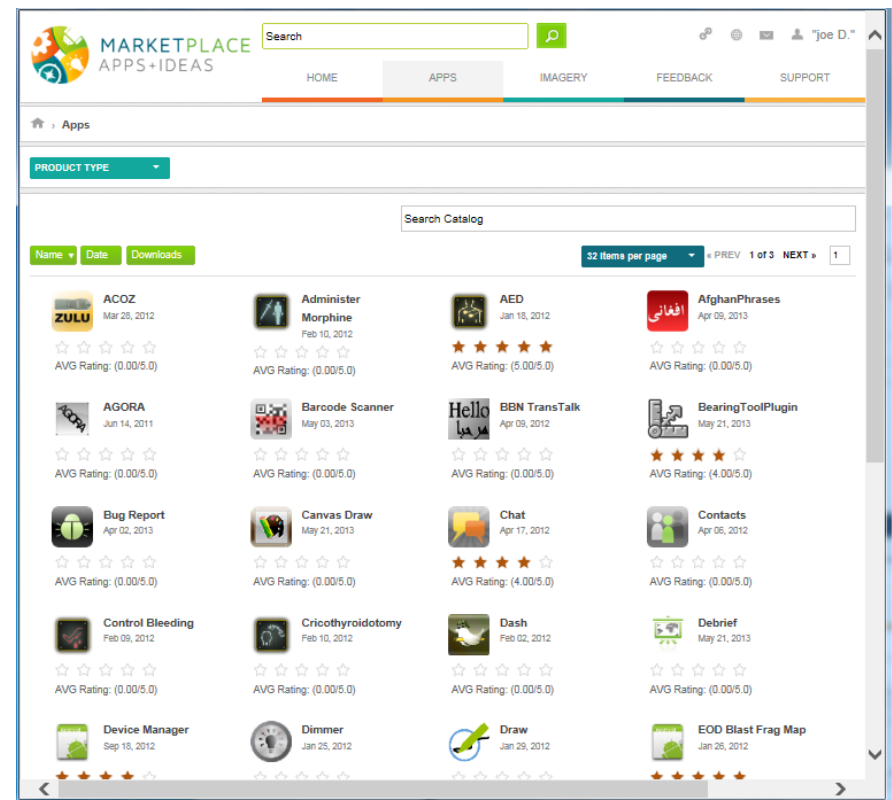
Devices Deployed

- Dell Streak
 - 5" Screen deployed overseas
- Samsung Galaxy Note 1
 - 5 1/4" Screen deployed locally



Marketplace for Apps

- Website version of a military app store
- Allows developers to upload apps
- Allows users to download apps
- Groups of apps together as a kit



Marketplace for Apps

- Testing as different users with different permission levels
- Different browsers (Internet Explorer, Firefox, Google Chrome, etc.)
- Ease of navigation
- Can user find information quickly?



Handheld Apps Testing

- Core Apps
 - Maps
- Locations
- Traces showing history



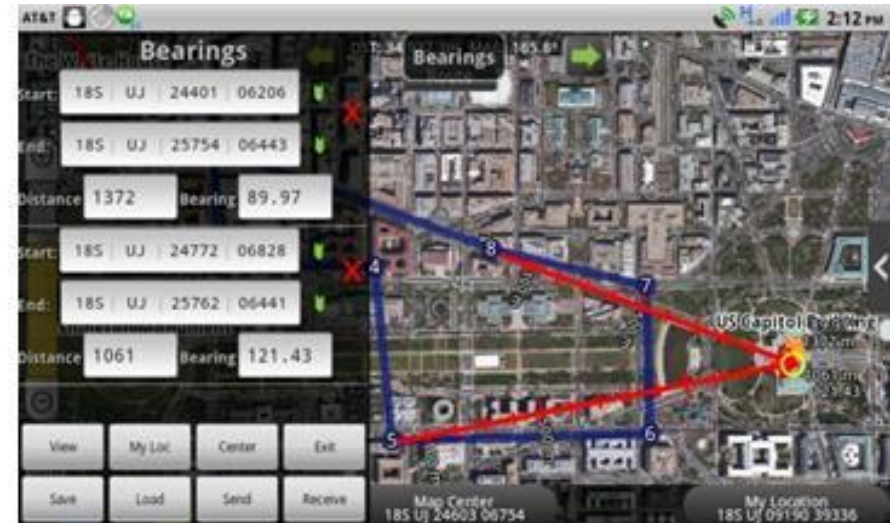
Handheld Apps Testing

■ Maps Plugins

■ Route Planning / Navigation



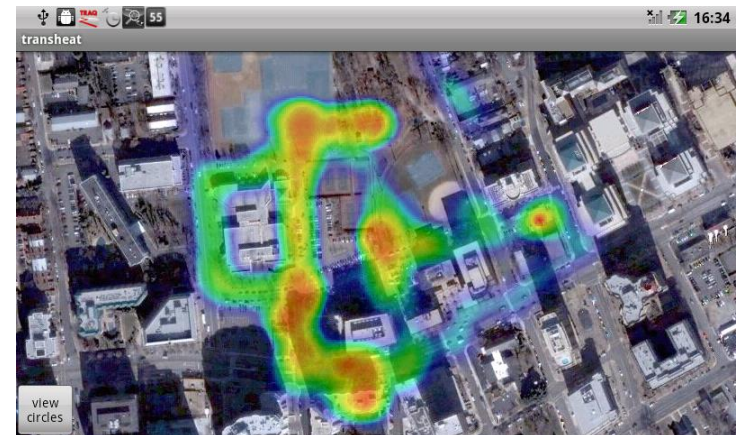
■ Bearings



■ Testing: Functionality and accuracy of data showed through plugins

Handheld Apps Testing

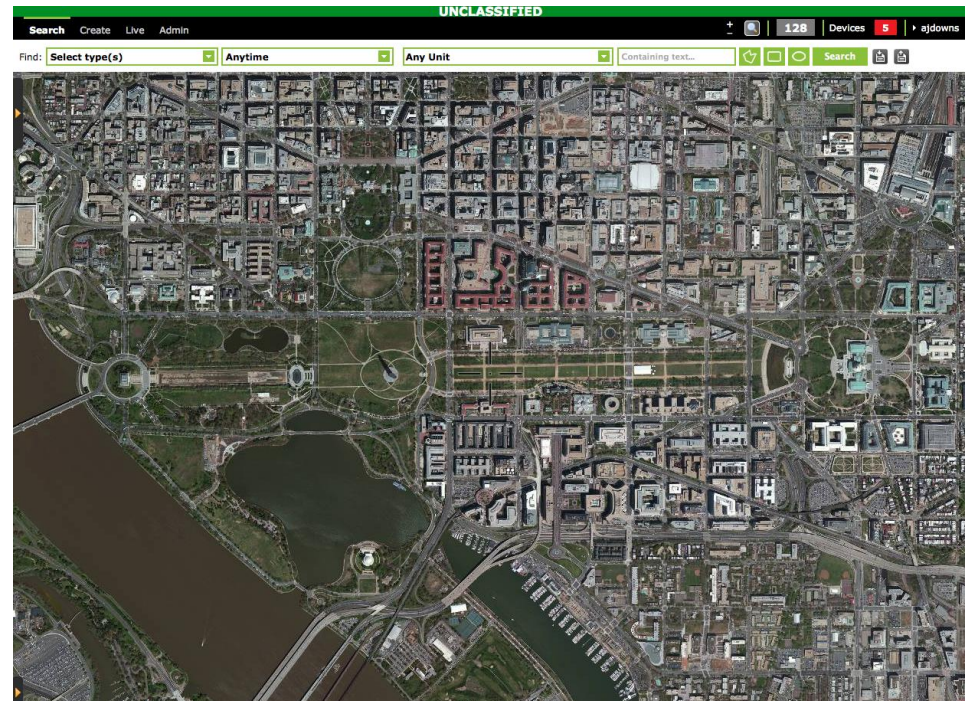
- Maps Plugins
 - Geo-located media (pictures, videos, audio notes)
 - Heat maps of GPS history



Client-Based Apps

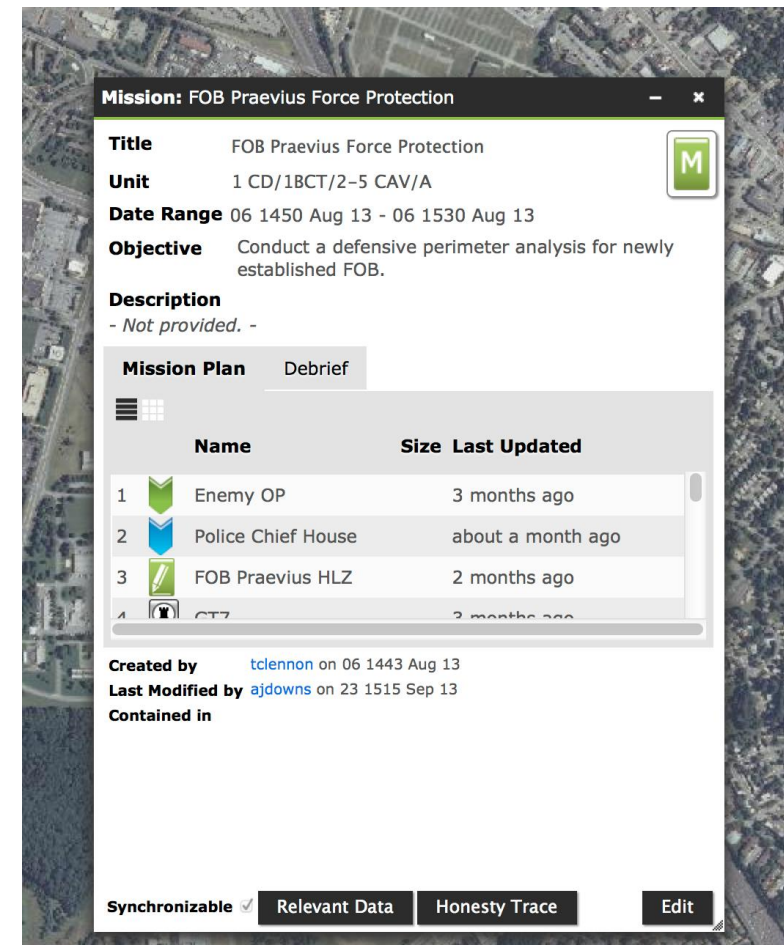


- Runs on Laptops with no connectivity
... or ...
- Runs on Web server using devices with wifi or 3G/4G connectivity



Client-Based Apps

- Pre-create groups of syncing items to be pushed to handhelds
 - Significant locations
 - Routes
 - Drawings
 - Text
 - Media



Client-Based Apps

- Automatic sync starts when a connection is made (USB or network)
 - GPS Traces
 - Geo-located media
 - Significant locations
 - Drawings & Diagrams
 - Person of Interest Profiles

Devices					
User	Device	Connection	Status	Last Synced	
transappusei	android:a8e94464a3ff30c36e8a9b		SYNCED	2013-11-08 15:50:51	
If.n	android:8f13f8b58e71e2f80eb479		SYNCING	2013-10-28 17:58:43	
paulina.s	android:893c9862d9793facbfc531		SYNCING	2013-10-22 16:42:05	
em.n	android:83ce68e49e9a847589bf3		SYNCING	2013-11-08 09:47:21	
melmat suo	android:7e1779ec379993dea703e		CONNECTED	Not Available	
ajd.n	android:5c9f58e9fadd7ad71d5bbf		SYNCING	2013-11-06 14:32:09	
mel2	android:2110ec144c0bd466ecb70		SYNCED	2013-11-08 15:51:55	

Client-Based Apps

- After the mission, create debriefs with traces, data, and media from the mission



User-Centered Testing

- App Spot Checklist
 - List of UI components and intended functions of apps
- Periodically used to do thorough regression testing of apps

APP SPOT CHECKLIST – 03/01/2013

MAPS

- Panning and Zooming (Satellite and Topo Imagery)
 - Imagery Presence
 - Speed of Imagery Redraw
- Plan Route
 - Create several routes (one with a few waypoints and another with 12+ waypoints) by both long pressing the screen and inputting grid coords
 - Edit waypoints by long-pressing
 - Send/receive routes
 - Save/Load routes
 - Clear routes
 - Delete saved routes
 - Cycle through plotted points on a completed route via the arrow icons
- Bearing Tool
 - Invoke Bearing tool from Map Center, Maps Menu, long-press on map, from User Info popup
 - Create and draw various bearings. Compare results with other angular measurements, e.g. route segments.
 - Create bearings from My Location and Map Center
 - Use Spots to define start and end spots
 - Test with MGRS, Lat/Long DMS and Lat/Long decimal
 - Delete individual bearings
- HeatMap(Not on NOTE)
 - Generate Heat Maps for individually-selected tracks
 - Generate Heat Maps for all tracks
 - Verify that generated Heat Maps appear on Map when layer is turned on

- Send/Receive spots via QR code
- Navigate to Spots
- Menu
 - Check for new items
 - Ensure navigation and bearing plugins installed correctly
 - Test all options
- Settings
 - Verify current settings; note differences with previous version
 - Note new and missing items
 - Review for utility, i.e. is a particular setting used at all
- Lock
 - Verify that screen lock works
 - Verify that orientation lock works
- Orientation and rotation -- ensure that all functions behave in both portrait and landscape. Ensure that rotating the device in the middle of any operation works properly.
- Drawer
 - Ensure drawer opens and closes correctly in both portrait and landscape mode.
 - Check that you can invoke: RF list, TRAQ Camera, TRAQ Mic, TRAQ Review, GPX List, Chat, Screen lock and Orientation lock

MAP DRAW

- Drawing (looking at Satellite Imagery)
 - All drawing tools work as they are intended
 - Change color and transparency of drawings
 - Change fill color of drawings
 - Change line style
 - Center draw and Shape Preview

User-Centered Testing



- Creating “missions” to mimic use cases with info from:
 - Briefings and interviews with soldiers
 - Field Service Representatives (Tech & Training Liaisons with soldiers in the field)
- Example:
 - Patrols to gather intelligence & look for persons and locations of interest

Communication of Findings



- Weekly Reports to program management
 - Show-stoppers & watchpoints
- Bugs, Crashes, Improvements, New feature suggestions, etc.
 - Online bug reporting system

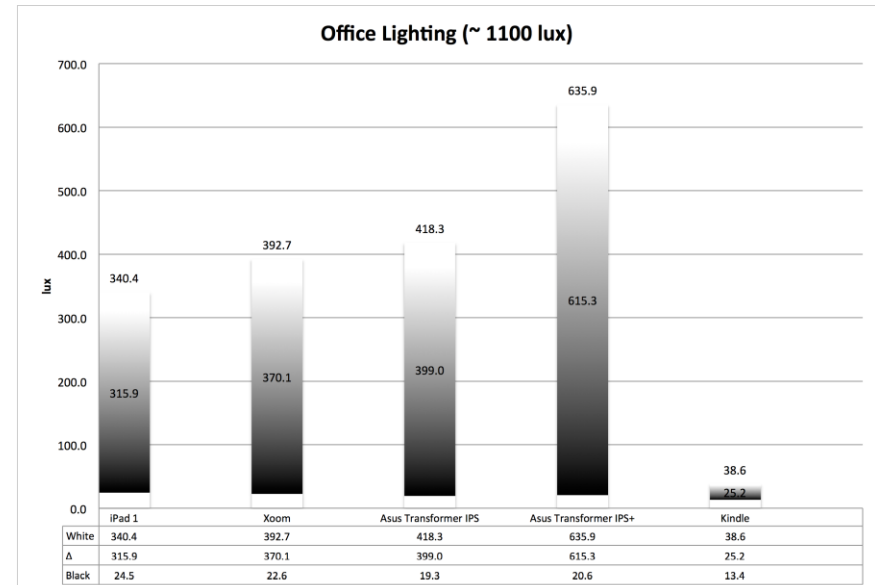
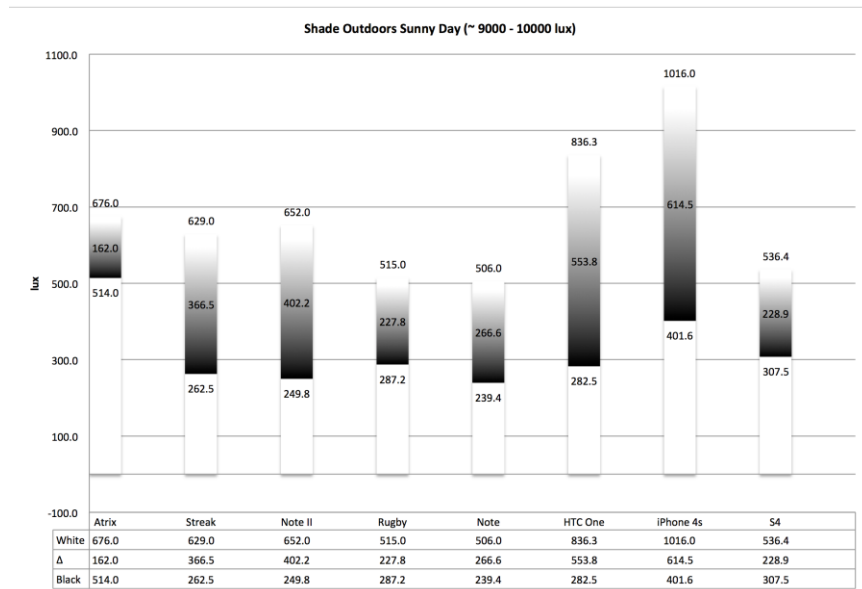
Testing for New Future Devices



- Repeatable & reproducible test methods
- Relatively easy to obtain materials
- Provide comparisons of devices
- Allow sponsors to choose future devices

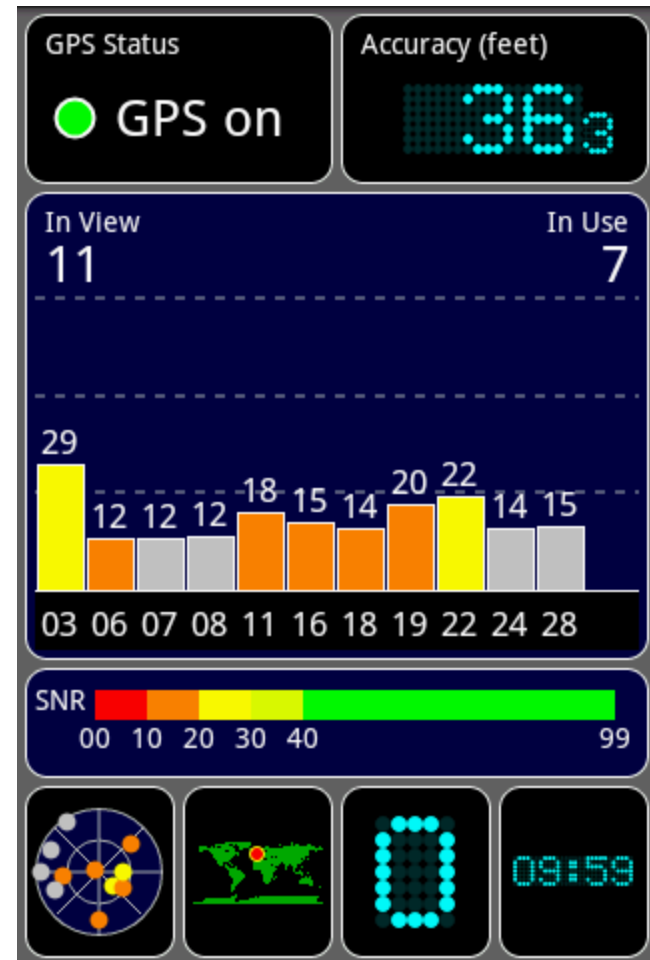
Testing for New Future Devices

- Display Usability
 - Brightness & Contrast Estimates
 - Multiple ambient brightness levels



Testing for New Future Devices

- GPS Accuracy & Timeliness
 - Accuracy from GPS Testing app
 - Known survey points
 - Average locations & distance to survey points



Testing for New Future Devices



- Camera Usability
 - # of pictures taken in 30 seconds
- Compass testing
 - Repeatable & reproducible sets of compass readings between known points in multiple orientations and configurations

Questions?



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