

Slide 1



[Post-presentation editing – drh]

This is a presentation & discussion of **Smart Phone Apps for Urban Forestry & Arboriculture...**

First, how many do NOT have smartphones?

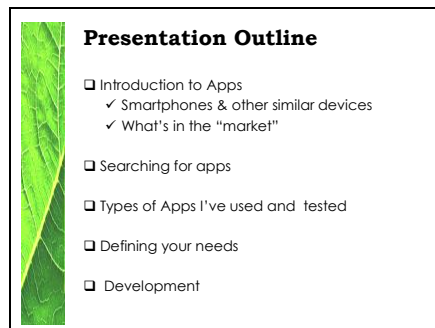
Have any of you developed an arborist-specific smartphone application (app)?

Are any of you using arborist-specific smartphone applications ?

This presentation will discuss some specific apps I have adapted for arborist-related work, a strategy for searching for & testing apps, and the list of my “most used” apps.

Urban Forestry South is the Southern Region’s urban & community forestry Technology Transfer Center which supports U&CF programs through state agencies and municipalities.

Slide 2



In this presentation I’ll discuss ...

Slide 3

Introduction to App Systems

- ❑ iOS (i.e. Apple) (17%) - App Store
 - Currently available: 700,000+
 - Exceeds 30 billion downloads
- ❑ Android (68%) - Google Play
 - Apps online (estimated): 675,000
 - Downloads 25 billion downloads
 - 100,000 developers
- ❑ Others (Windows, RIM, Symbian)

Two primary “markets”...

- Apple - better control i.e. “better” apps – higher app development cost
- Android - open (more developers) – lower quality

This is the situation... (market share)

- Lots available
- Most probably not useable !
- Free (Android) and small fee
- Test free and purchase “ad free” version

Slide 4

What’s In This Huhg “Market”

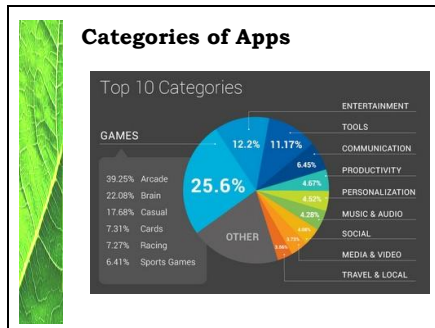
- ❑ Games
- ❑ Business “marketing”
- ❑ General Business
- ❑ Completely worthless “stuff”
- ❑ “Adaptable” apps (to fit our needs)
- ❑ **Cloud access**
- ❑ Tree related (ID, invasives, data access))
- ❑ Mapping
- ❑ Annotated photography

Most of what is available isn’t too useful...

Cloud data storage is critical component.

A short list of potential in our “market”...

Slide 5



Tremendous growth in development & downloads...

What does this mean for us (i.e. arborists, urban foresters)...

- Nothing, since most are not useful
- But, something may be adaptable
- Helps us generate “arborist specific” ideas

Not many “arborist-relevant” however.

Mostly “free” (with ads), or very low cost (but, often don’t work)

Slide 6



Mostly “free” (with ads), or very low cost (but, often don’t work).

Slide 7

-
- Smartphone-Like devices**
- ☐ Smartphones
 - iPhones (iTunes)
 - Android (Google Play)
 - Others (Windows, Blackberry)
 - ☐ Tablets
 - Many sizes (7", 9", 10")
 - IOS & Android
 - Run same apps, but...
 - Durability (i.e. how rugged is it?)

Hardware options are expanding... (this is good)

- Available in many sizes
 - ✓ Phone-size (and “super-phone sized”)
 - ✓ 7”
 - ✓ 10” (iPad)
- Tablets run same operating systems (IOS & Android)
 - ✓ Faster
 - ✓ With somewhat different layouts
 - ✓ Many apps (Android) don’t keep up (i.e. don’t work or function quite right)
- However, we need somewhat more “rugged” hardware

Slide 8

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- Important/Critical Features**
- ☐ GPS of reasonable accuracy
 - ☐ Camera & video if needed
 - ☐ Audio
 - ☐ Notes (data)
 - ☐ Cloud storage
 - ☐ Broadcast capability
 - ✓ send to others in real time
 - ✓ distance not limited

Critical features...

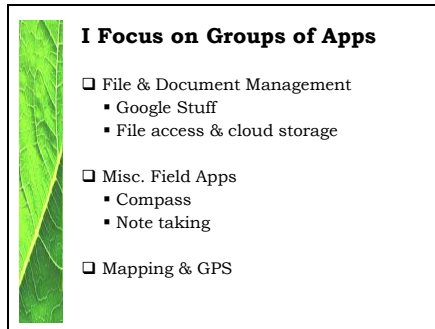
Features that make it possible to consider smart-devices for urban forestry & arboriculture work.

Slide 9



Any questions or comments so far...

Slide 10



I keep a fairly constrained focus, typically...

- File management
- Adaptable field apps (misc)
- GIS, GPS

Download & test free apps and then may upgrade if appropriate for “ad free”.

Slide 11



The device “homepage” (from ASUS Transformer Prime 10” tablet)

Browser, Google search, e-mail, calendar (on an Android, all the Google “stuff”) and other essentials...

Slide 12

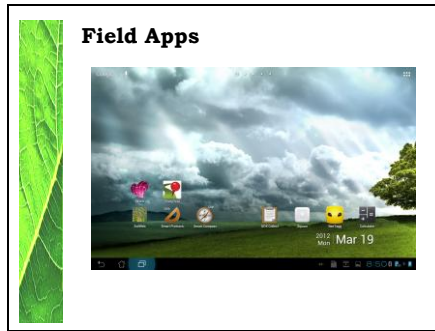


On my general tablet file screen...

- File manager (probably system dependent)
- Docs (if you use Google cloud)
- Other cloud access (Dropbox, Box.net)
- Zipped file management
- Notes
- Office Suite (purchased)

Office-compatible suite (really for larger tablets) – purchased (\$20)

Slide 13



General field apps...

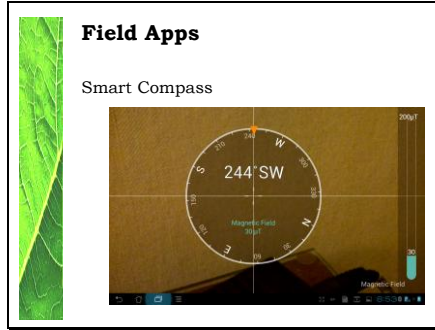
- Skitch (photo annotation)
- EveryTrail (route recording with annotation) – Now moving to EpiCollect
- Tree lean (protractor)
- Compass
- Square (credit card use in field)
- QR reader (i-Nigma, BeeTagg)

Slide 14



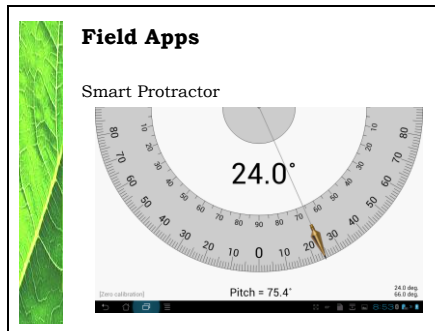
Skitch - photo annotation

Slide 15



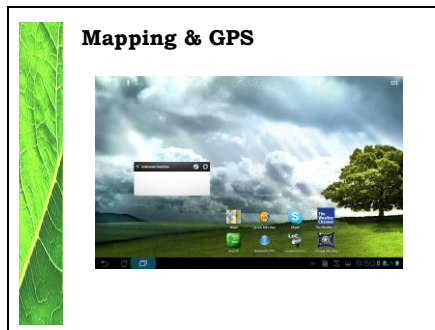
SmartCompass – verify directions for notes

Slide 16



SmartProtractor – tree lean & slopes

Slide 17



Mapping, but mostly GIS/GPS related...

- Google maps with Latitude (to track others)
- gvSIG & QGIS (mobile OS GIS)
- ESRI reader
- LocationFromChip (mostly for testing your device GPS) – can create & export “tracks”
- BluetoothGPS for connecting to a higher accuracy GPS if needed

Slide 18

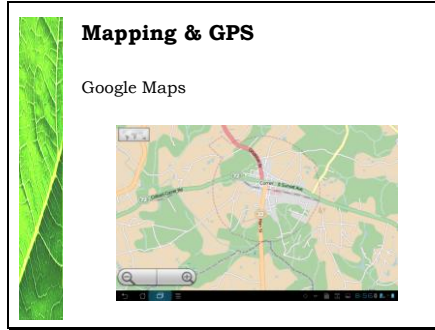


My “most used” app so far...

Now moving to EpiCollect (not a GIS, but uses GPS to quickly collect data on your customized forms).

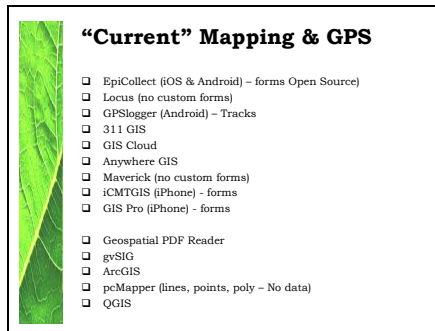
iCMTGIS on iOS; costly, but worth checking; full functioning GIS/GPS with data forms.

Slide 19



A good, quick mapping app with potential for crew location with Latitude...

Slide 20



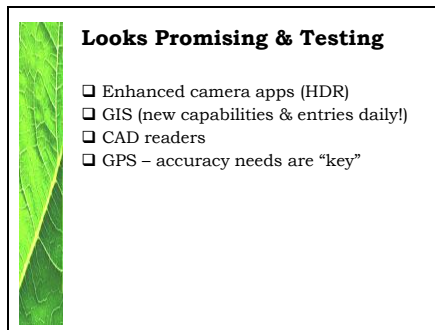
“Current” GIS/GPS on smart-devices...

Easy data collection

“Breadcrumbs”

GIS in the field (not necessarily data collection)

Slide 21

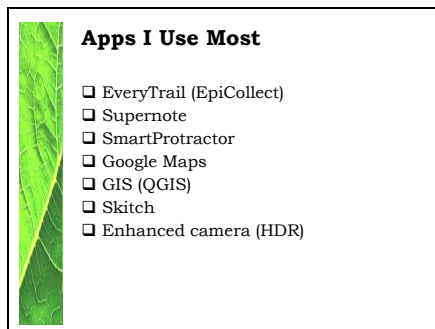


Currently researching, testing and evaluating...

Good photography is important for photography.

For GPS, consider what accuracy is needed. However, reports of accuracy vary and no exhaustive tests have been reported.

Slide 22



My top apps...

Also, iOS (i.e. Apple) users should look at Arborist (client quotes & reporting). And, Android/iOS SECurET Live Stream provides real-time streaming video to other smart devices.

Slide 23

Use/Development Categories

- Adapt existing
- Data collection apps with "forms"
- MIT ApplInventor
- Other development systems

How arborists might approach app adoption...

Find and use existing apps (e.g. Smart Protractor)

Use easy to adapt data collection/GPS programs with custom forms (e.g. EpiCollect)

Develop from scratch for your own specific needs (e.g. MIT ApplInventor)

Android or iOS development kits

Slide 24

Needed in the "Market"

- Arborist Suite
 - Note dictation (like iPhone)
 - Annotated photos (multiple sources)
 - Mapping (i.e. location enabled)
 - Risk & Condition evaluation
 - Report assembly in the field w/ e-mail
- Crowd-sourcing (arborist prototypes)

For those interested in writing apps for arborists...

- Things we still need...
- Look at...
 - ✓ Douglas (GA) Mobile)
 - ✓ New York City (tree inventory)
 - ✓ Trees UK
 - ✓ Animated knots
 - ✓ ClickToFix (custom app development)

Slide 25

Summary

- Office
- Field
- Marketing Tool
- Crowd-sourcing
 - ✓ "crowd" may be small
 - ✓ municipal use (311)
- in lieu of "ruggedness"...
 - ✓ low cost
 - ✓ data to "cloud" for security from loss
 - ✓ device size (7" vs 9"+)

In summary...

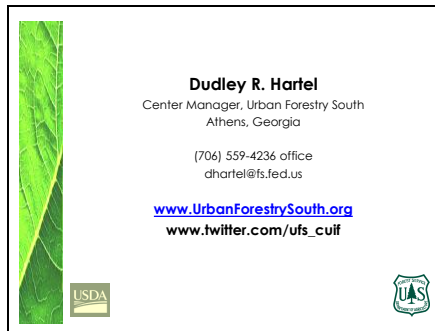


Slide 26



Any final questions or comments about Smartphone applications for arboriculture?

Slide 27



A PDF of this presentation will be at www.UrbanForestrySouth.org.

“Quick Search” with ‘AUFA’ (no quotes).