



Apps: Changing Technology Offers Opportunities for Public Works

Dr. Eric W. Becker
University of Texas at Arlington
December 4, 2014

What is This About?

- Everyone wants an “APP”
- What does that have to do with Public Works?
- Devices have improved
- As a result, smart phones can do more.
- More and more people have smart phones.

The App

- What is an App?
 - Small Computer Program, an Application
 - Usually on a Cellular Phone
 - More ideally on a Smartphone
 - Apps are small
 - Apps rely on content (or used to)

The Telephones

- Cellular Phones
 - originally for making wireless telephone calls.
- More powerful cell phones:
 - Phones that can run an application
- Now the smart phones:
 - Computers that can make a telephone call.

The Smart Phone

- Major improvements
 - More Colors
 - More functions
 - Better computer processing power
 - Better memory
- The popular improvements sold as smartphone technology actually means these pocket computers also have to be more advanced.

The Sensors

- The Camera
- The Microphone
- The Radio
- The GPS
- The “Gyroscope”

Communication

- 1G, 2G, 3G, 4G LTE –what does that mean?
- G for “Generation”
- LTE for “Long Term Evolution”
- More information than just voice and pictures can be transmitted.
- Larger and faster

One Person Examples

- Simple note taking and communication
- Scheduling
- Taking a picture and linking to GPS
- Measuring an angle
- Measuring a vibration
- Measuring a force

One person with Auxiliary

- A smartphone can act as a remote host
 - Back-end Services
 - Bluetooth devices
 - Wireless Sensor Nodes
 - Quadcopters

Crowd Sourcing

- Everyone who has a smartphone
 - can give feedback
- Hundreds of people can take measurements
- Cover large area:
 - a school, a town, a city

Cool Projects

- The North Texas Application Challenge
 - Compost Denton
 - Energy Pal
 - Gridlock
 - Juxt
 - Sprink.ly



<http://www.ntxappschallenge.com/>

Emerging Technologies

- Better Math
 - Fast Fourier Transform-FFT
 - Signal Processing on the Smartphone
 - Tremor Tracker

Emerging Technologies

- The Point Cloud
 - What is a Point Cloud?
 - The Kinect
 - “Structure”
 - “Project Tango”

Key Thought

- An application (App) that has both good functionality and good interface can encourage the public community to care about your project.

Interesting Links

- NTxApps Challenge
 - <http://www.ntxappschallenge.com/>
- Project Tango
 - <https://www.google.com/atap/projecttango/#project>
- Structure Sensor
 - <http://structure.io/>