Utilization of Phone Application Technology to Record Log Truck Movements in the Southeastern U.S.

Marissa “Jo” Daniel, Tom Gallagher, Tim McDonald & Mathew Smidt
W.S.R.I. Trucking App

- Developed by Dr. Timothy McDonald.

- Google Based App.

- App is currently only accessible to designated participants with Android phones.

- Activated through Gmail/Google Drive account.

- Data collected is stored in Google Drive on participants account.

- Data is “shared” to Marissa “Jo” Daniel at initial setup for collection and analysis.
W.S.R.I. Trucking App

- Records GPS location of driver for the duration the app is running.
- Identifies when driver has traveled less than 500 meters in 15 minutes.
- Questions driver as to the reason for the delay in movement.
- Records stop event location, time and reason for delay.
- Archives data in phone until driver decides to send data to server.
Main Screen

- Initial screen seen by driver.

- Recorded stops are displayed after occurrence here.

- Top right hand corner depicts three vertical dots, this is the options menu.
Options

► About provides information about the app with regards to google licensing.

► Stop location service ends the program
  ► This button asks driver if he wishes to archive his data before closing app to ensure data collection.

► Add a fuel stop allows driver to manually input fuel.

► Archive data sends operator to the collection page
  ► Data is sent to the google server here.

► Set driver number allows driver to set his driver ID
  ► This number is designated to him
Once a stop event has been recorded the driver may set the reason as to why the event occurred.

Time of stop event and duration are displayed for driver’s benefit.

Driver’s are able to view the stop on a map when clicking the “where” icon.

After they have set the stop reason the event disappears from the page.

Multiple stops may accrue on the page.
Stop Reasons

- 9 response’s are available for the driver to select for their situation.
- Once selected, driver sets stop reason.
- Event stop will disappear from main screen.
Archive Data

- Driver will be relocated to this page by choosing the archive option or selecting archive data before stopping app.

- Driver selects “Send Data to Server”

- Once data has been transferred the screen will either return to the main page or shut the app down.

- Driver’s are asked to send data at the end of each workday.
Results: Mill Delay Comparison

(Times recorded once enter mill property until leave property)

- **Maximum**
  - South Carolina: 1:18
  - Ohio: 1:09
  - Alabama: 1:40

- **Average**
  - South Carolina: 0:36
  - Ohio: 0:39
  - Alabama: 0:43

- **Minimum**
  - South Carolina: 0:17
  - Ohio: 0:17
  - Alabama: 0:22
Results: Logging Deck Delay Comparison

- **Maximum**
  - South Carolina: 1:39
  - Ohio: 0:56
  - Alabama: 0:53

- **Average**
  - South Carolina: 0:44
  - Ohio: 0:31
  - Alabama: 0:29

- **Minimum**
  - South Carolina: 0:22
  - Ohio: 0:11
  - Alabama: 0:18
Results: Total Delay Comparison

(Time (Minutes) includes Mill, Logging Deck, Concentration Yard & Fuel/Shop Delays)

- **South Carolina**
- **Ohio**
- **Alabama**

**Maximum**
- South Carolina: 1:51
- Ohio: 1:09
- Alabama: 1:40

**Average**
- South Carolina: 0:37
- Ohio: 0:32
- Alabama: 0:36

**Minimum**
- South Carolina: 0:10
- Ohio: 0:07
- Alabama: 0:18
Deliverables From the Study

- Phone app will be available to W.S.R.I. members.
- Turnaround times for various mills (grouped by type and/or region).
- Cycle times for participating loggers in various regions.
- Availability for anyone to collect, interpret and analyze their own data.
Additional Studies

- Set-out trucking versus hot-loading.
- Trade off of in-woods utilization versus truck utilization.
Questions?