

RidePilot: Open Source Scheduling for Small Transportation Providers

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Overview

- Motivations for Computer-Aided DRT Scheduling
- Challenges for Smaller Transportation Providers
- Overview of RidePilot Open Source Scheduling Software
- UTA's Innovative Deployment of RidePilot
- Next Steps for RidePilot

Benefits of Computer-Aided DRT Scheduling

- DRT management is logistically challenging
 - » Computerized tools can help find the most efficient trip schedules, driver assignments, and management and maintenance of vehicles, thereby making the most out of available resources

- DRT services require data-intensive grant reporting
 - » Computerized scheduling tools can track required information and generate reports on demand

- State of the industry:
 - » Most medium and larger DRT providers rely on robust commercial solutions with sophisticated scheduling algorithms
 - » Many small, rural providers rely on manual methods scheduling and data tracking methods: pen-and-paper, whiteboard, Excel, etc.

Challenges for Smaller Providers

- Commercial scheduling packages are unaffordable for many smaller providers (less than 5-to-10 vehicles), including many non-profit organizations
 - » Significant licensing fees
 - » Feature overkill
- Problems with relying on manual tracking methods:
 - » Less likely to use resources as efficiently as possible
 - » Much more manual labor required
 - » Greater chance of human error

RidePilot Scheduling Software

- Open source
- Initially developed by RideConnection in Portland
- Subsequently enhanced and deployed by UTA as a tool for the use of smaller providers in the Salt Lake region
 - » A single deployment can accommodate multiple providers
- Best suited for smaller providers (< 5-10 vehicles)
 - » Good data entry and reporting capabilities
 - » Screens to assist with manual scheduling and dispatching
 - » NO current support for automated scheduling (although this is envisioned for future upgrades)

Key RidePilot Features

- Enter customers, vehicles, and drivers
- Create customers trips, including subscription (recurring) trips
- Create runs with vehicles and drivers, typically recurring
- Schedule trips to runs and track outcomes
- Create and track recurring compliance events for drivers (e.g. license renewal) and vehicles (e.g. periodic maintenance, annual registration)
- Generate a range of reports
- Enable automated scheduling requests from trip planners (e.g. 1-Click) via application programming interface (API)

RidePilot: Enter a New Trip

New Trip [Ⓜ]

[Save](#) [Cancel](#)

Customer

Customer

[New](#)

Customer Private Notes

Repetitions

Days of Week S M T W T F S

Repeat every
Weeks

Vehicle

Driver

Mark as Called Back:

Other

Called Back?

Trip Result

Donation

Funding Source

Service Level

Trip Parameters

Pickup Time

Appointment Time

Direction

Pickup Address

Dropoff Address

Dropoff Phone

Trip Purpose

Group Size

RidePilot: Manage Trips

Trips: Sep 18, 2016 - Sep 24, 2016

New Trip

Hide Calendar

Filter

From Date

To Date

Days of Week
 S M T W T F S

Vehicle

Driver

Status

Trip Result

	Pickup Date	Customer	Phone	Trip Direction	Pickup Address	Pickup Time	Dropoff Address	Appointment Time	Status	Called back?	Result
View	19-Sep-2016 Mon	LANELLE BUTTERFLY	8012625626	Outbound	777 White Pine Drive, Tooele, UT 84074	9:00am	321 West Plum Street, Grantsville, UT 84029	9:30am	101 am	<input type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	SADIE SWEET	8012625626	Outbound	999 Morning Lane, Tooele, UT 84074	10:00am	222 West Cherry Street, Grantsville, UT 84029	10:30am	101 am	<input checked="" type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	Mickey Mouse	801-555-5555	Outbound	3610 900 West, South Salt Lake, UT 84119	10:00am	1275 West 2320 South, West Valley City, UT 84119	10:30am		<input type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	SADIE SWEET	8012625626	Return	222 West Cherry Street, Grantsville, UT 84029	12:30pm	999 Morning Lane, Tooele, UT 84074	2:00pm		<input checked="" type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	LANELLE BUTTERFLY	8012625626	Return	321 West Plum Street, Grantsville, UT 84029	1:00pm	777 White Pine Drive, Tooele, UT 84074	1:45pm		<input type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	SADIE SWEET	8012625626	Outbound	999 Morning Lane, Tooele, UT 84074	2:15pm	888 East 750 North, Tooele, UT 84074	3:00pm		<input checked="" type="checkbox"/>	<input type="text"/>
View	19-Sep-2016 Mon	Mickey Mouse	801-555-5555	Return	1275 West 2320 South, West Valley City, UT 84119	3:00pm	3610 900 West, South Salt Lake, UT 84119	3:31pm		<input type="checkbox"/>	<input type="text"/>
View	20-Sep-2016 Tue	LANELLE BUTTERFLY	8012625626	Outbound	777 White Pine Drive, Tooele, UT 84074	9:00am	321 West Plum Street, Grantsville, UT 84029	9:30am		<input type="checkbox"/>	<input type="text"/>
View	20-Sep-2016 Tue	Joy Smith	8012625626	Outbound	123 West Vine Street, Tooele, UT 84074	9:15am	456 Quirk Street, Grantsville, UT 84029	10:05am		<input checked="" type="checkbox"/>	<input type="text"/>
	20-	LANELLE	8012625626	Return	321 West Plum Street,	1:00pm	777 White Pine Drive, Tooele,	1:45pm		<input type="checkbox"/>	<input type="text"/>

RidePilot: Enter a New Run

New Run

[Save](#) [Cancel](#)

Name

Date & Time

Date



Scheduled Start Time



Scheduled End Time



Actual Start Time



Actual End Time



Repetitions

Days of Week S M T W T F S

Repeat every
Weeks

Vehicle

Vehicle

Start Odometer

End Odometer

Driver

Driver

Unpaid Break Time

Paid

RidePilot: Manage Runs

Runs: Sep 18, 2016 - Sep 24, 2016

New Run

Hide Calendar

Filter

From Date

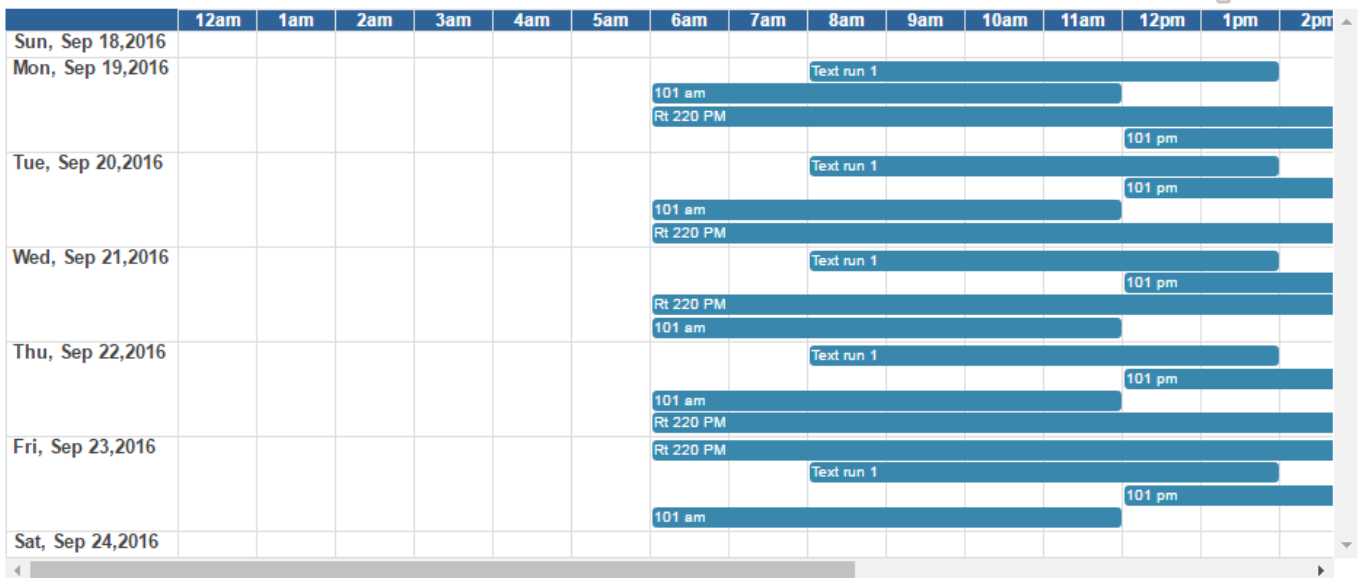
To Date

Days of Week
 S M T W T F S

Vehicle

Driver

Result



	Name	Date	Start Time	End Time	Vehicle	Driver	Result	Reimbursement
View	Text run 1	Mon, Sep 19, 2016	08:00 AM	02:00 PM	MV1-12	Xudong	Incomplete	\$0.00
View	101 pm	Mon, Sep 19, 2016	12:00 PM	06:00 PM	16101-FT	Xudong	Incomplete	\$0.00
View	101 am	Mon, Sep 19, 2016	06:00 AM	12:00 PM	MV1-12	JAX-JAX	Incomplete	\$0.00
View	Rt 220 PM	Mon, Sep 19, 2016	06:00 AM	05:00 PM	MV1-12	No driver	Incomplete	\$0.00
View	Text run 1	Tue, Sep 20, 2016	08:00 AM	02:00 PM	MV1-12	Xudong	Incomplete	\$0.00
View	101 pm	Tue, Sep 20, 2016	12:00 PM	06:00 PM	16101-FT	Xudong	Incomplete	\$0.00
View	101 am	Tue, Sep 20, 2016	06:00 AM	12:00 PM	MV1-12	JAX-JAX	Incomplete	\$0.00
View	Rt 220 PM	Tue, Sep 20, 2016	06:00 AM	05:00 PM	MV1-12	No driver	Incomplete	\$0.00
View	Text run 1	Wed, Sep 21, 2016	08:00 AM	02:00 PM	MV1-12	Xudong	Incomplete	\$0.00
View	101 pm	Wed, Sep 21, 2016	12:00 PM	06:00 PM	16101-FT	Xudong	Incomplete	\$0.00

RidePilot: Assign (Schedule) Trips to Runs

Trips-Runs: Sep 19, 2016

New Run

Hide Calendar

Filter

Date

Vehicle

Driver

Status

Result

Trip Result

	12am	1am	2am	3am	4am	5am	6am	7am	8am	9am	10am	11am	12pm	1pm	2pm
<input type="radio"/> Rt 220 PM															
<input type="radio"/> 101 am										LAN BUT 777 White Pine Drive Tooele UT 84074	SAD SWEET 999 Morn Lane Tooele UT 84074				
<input type="radio"/> 101 pm														LANELLE BUTTE 321 West Plum Street, Grantsville UT 84029	SADIE SWEET 999 Morning Lane, Tooele, UT 84074
<input type="radio"/> Text run 1															
<input type="radio"/> Cab															
<input type="radio"/> Unscheduled										Mickey Mouse 3610 800 West South Salt Lake UT 84119			SADIE SWEET 222 West Cherry Street, Grantsville, UT 84029		

	Pickup Time	Appointment Time	Customer	Pickup Address	Dropoff Address	Status
<input type="radio"/> View	9:00am	9:30am	LANELLE BUTTERFLY	777 White Pine Drive, Tooele, UT 84074	321 West Plum Street, Grantsville, UT 84029	101 am
<input type="radio"/> View	10:00am	10:30am	SADIE SWEET	999 Morning Lane, Tooele, UT 84074	222 West Cherry Street, Grantsville, UT 84029	101 am
<input type="radio"/> View	10:00am	10:30am	Mickey Mouse	3610 900 West, South Salt Lake, UT 84119	1275 West 2320 South, West Valley City, UT 84119	Unscheduled

RidePilot: Managing Drivers

Drivers

[New Driver](#)

Name	Active	Paid	Available	Overdue Events
Frank Farcus	Active	Paid	Driver is not available	Yes
JAX-JAX	Active	Paid	Available	Yes
Tim Jones	Active	Volunteer	Driver is not available	Yes
Xudong	Active	Paid	Available	Yes

RidePilot: Setting Up Driver Compliance Events

Recurring Event

[Delete](#) [Edit](#)

Event Details

Event Name


Event Notes

Recurrence Notes

Scheduling

Frequency

Schedule

First Due Date 

Based on the schedule above and the compliance date based scheduling option, the first event for each driver would be due:

Scheduling Options

Use Compliance based scheduling

If a driver were to complete the first occurrence 1 day after the due date, their next event would be due:

New Driver Scheduling

Future Start Rule

If a new driver was created 1 day after the first due date, their first event would be due:

RidePilot: Selecting Reports to Run

Reports

Run

Daily Manifest

- Addresses*
- Age & Ethnicity
- Cab Log
- Clackamas County Transportation Consortium Summary Report
- Customer Callbacks*
- Customer Trips In Range
- Customer-Trips*
- Customers (Mail Merge)*
- Customers*
- Daily Manifest**
- Daily Manifest By Half Hour
- Daily Manifest By Half Hour with Cab Summary
- Daily Manifest with Cab Summary
- Database Tracking*
- Day's Trips Report
- Donation Tracking*
- Donations
- Driver Compliances*
- Driver Manifest
- Drivers (Mail Merge)*

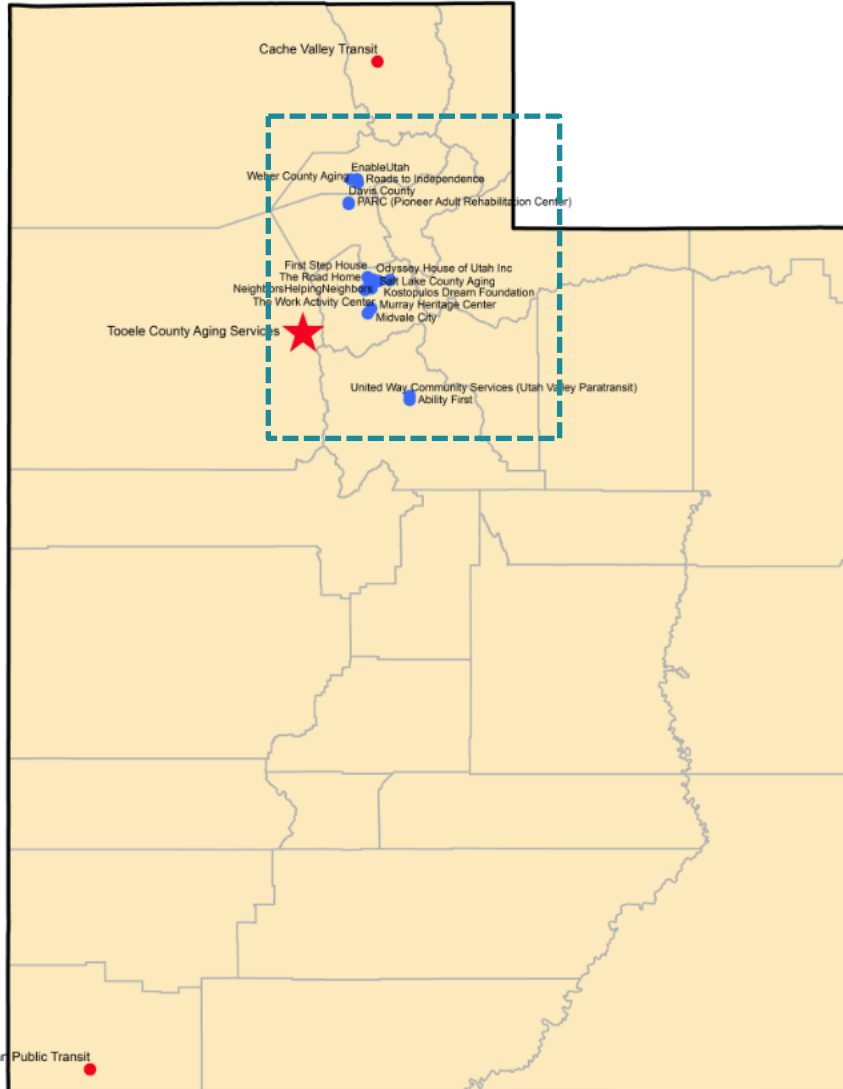
UTA, Serving the Greater Salt Lake Region

- Serves 1.1 million residents, 75% of Utah's population
- Largest fixed-route transit provider in state
- Provides commuter rail, light rail, street cars, bus service, paratransit, and over 500 vanpools
- *Serves as federal grant administrator and regional coordinator for paratransit and other specialized transportation services for disabled and aging populations*

UTA's Adoption of RidePilot for Region

- Tooele County received VTCLI grant for scheduling
 - » But lacked matching funds and IT know-how
 - » Sought assistance of UTA
- UTA agreed to help
 - » Secured matching funds from state agency, with proviso that procured scheduling system be made available to all of the region's transportation providers
- UTA selected open source RidePilot as best fit for needs
 - » Ability to enhance system to meet UTA needs
 - » Single deployment of RidePilot handles multiple agencies
 - » No ongoing licensing fees
 - » No incremental fees for additional agencies
- RidePilot currently in use at Tooele County as "pilot" user, will be rolled out to other agencies soon.

Current and Future UTA RidePilot Agencies



UTA Motivations for Project

“The agencies and nonprofits that serve people with disabilities and the aging population are striving to improve the quality of life for these individuals. It’s important to the UTA to play its part in this big engine and help these providers serve their clients.”

- Ryan Taylor, UTA Coordinated Mobility Manager

Preliminary Indications of Success

“In the beginning, all of our dispatch was done by hand or spreadsheets. Now we use RidePilot for all pickups and drop-offs and all driver and trip scheduling. If we were still doing this manually, we wouldn’t be able to keep up. RidePilot has made our lives so much nicer and easier.”

- Cissy Morton, Tooele County Mobility Manager

Replicable for Other Regions?

- Leverages coordination and IT capabilities of larger provider in region
- Offers low cost solution (although not free)
 - » Open source, so no ongoing licensing fees
 - » Costs associated with enhancements, hosting, maintenance, and support can be shared across multiple agencies
- Provides much needed help for smaller agencies
 - » More efficient schedules, with less labor and fewer mistakes
 - » Standardized processes and data capture to for required reporting

What's Next for RidePilot: UTA Objectives

- Near term goal: make this more useful for current set of user agencies
 - » Ongoing user interface improvements
 - » Modest AVL (via web app for mobile devices)
- Longer term goal: expand capabilities to enable most efficient use of resources, expand potential user base
 - » Some level of scheduling automation
 - » Real time dispatching / ride matching
- Interest in building broader community of RidePilot agencies – share funding, accelerate improvements, share benefits

Thanks! Questions & Comments?

