

A photograph showing the interior of a bus. In the foreground, the back of a person's head with dark hair is visible, sitting in a seat with a blue and purple patterned fabric. The bus has large windows on the right side, and other passengers are visible in the background, though they are out of focus. The lighting is bright, suggesting daytime.

# TRAVEL ASSISTANCE DEVICE

MORE ACCESS AT LESS COST

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# Meet Our Hero



# What do our heroes like John want to achieve?

- ☐ Be treated with respect
- ☐ Not be singled out due to disability
- ☐ Access to jobs
- ☐ Access to community
- ☐ Independence



# Transportation Dependence

- **STAGES** (Successful Transition After Graduation for Exceptional Students)



**From the parents:** *"STAGES has been a wonderful experience for Joey. He has accomplished many things he didn't realize he could do, **such as ride a city bus** and use a computer. I believe this program has really made a difference for Joey and his self-confidence. Thanks to all of you who worked so hard to make STAGES a successful program. We are proud of you, Joey!"*

# 23 Skills Needed to Travel Independently

1. Leave the place of origin and arrive at the bus stop on time.
2. Demonstrate appropriate street crossing skills.
3. Travel to and from the bus stop using his/her route of choice.
4. Stand at the bus stop or terminal in an appropriate place.
5. Look in the direction of bus travel.
6. Carry a bus pass and take out the correct fee.
7. Identify the correct bus (through number, color, style, inquiry).
8. Signal to the driver the desire to board.
9. Board the front entrance in consecutive turn.
10. Show the driver the bus pass or transfer and deposit the correct fare in the box.
11. Communicate any special needs to the driver.
12. Know how to board the lift and be secure.
13. Ask the driver for a bus transfer, if needed.
14. Select a seat or a proper place to stand.
15. Watch for landmarks.
16. Obey the rules of the bus and exhibit appropriate bus behavior.
- 17. Recognize a landmark near the desired bus stop.**
- 18. Signal for exiting at the proper time.**
19. Exit the bus through the proper door.
20. Travel to any necessary transfer points or destinations through the most direct/safest route.
21. Dial or ask for assistance when utilizing the phone.
22. Respond and act correctly in emergency situations.
23. Read the bus schedule and/or find routes.



# Trusted Sidekick - Travel Trainers



## SPOTLIGHT

Christina Hundley | commuter

Mark Sheppard | HART travel trainer

After less than one week of training, Christina Hundley was able to take the bus from her home to participate in USF's Successful Training after Graduation for Exceptional Students program (STAGES). By working with HARTline's travel trainer Mark Sheppard, Christina gained the confidence she needed to cross streets and use the correct routes and she no longer worries about getting lost. She has a deep appreciation for Mark and the travel trainer program. In her words, "HARTline Rocks!"

*A Compassionate and Sound Business Practice*

# What is making their journey harder?

- ❑ More demand than travel trainers
- ❑ Hard-to-predict time to train to use transit
- ❑ Moving vehicles and AVL lag
- ❑ Bus stop location (in)accuracies
- ❑ Parents/Guardians

# A Solution: Travel Assistance Device (TAD)

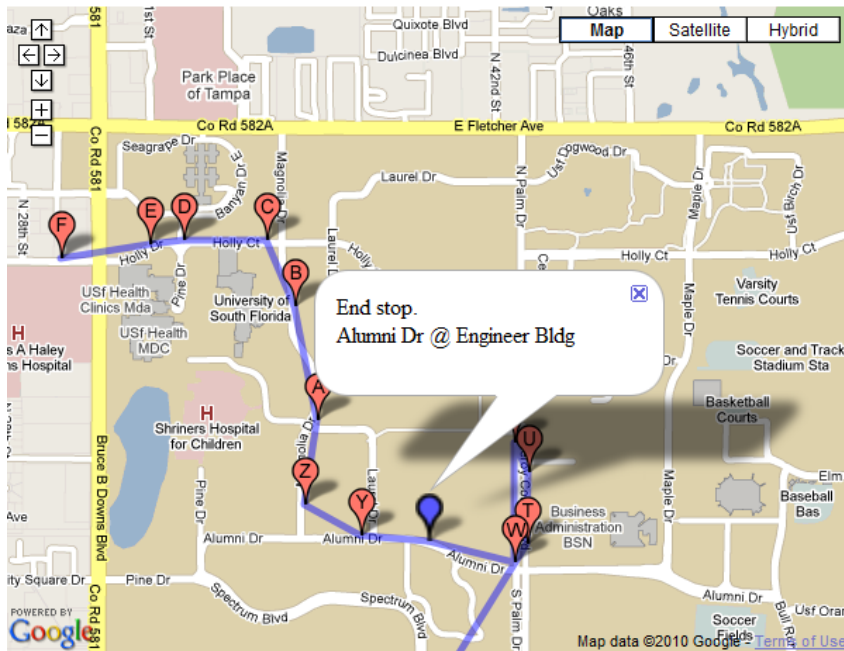
Providing  
timely  
and  
private  
alerts via  
mobile  
devices





# How Does TAD Work?

## Planning Trips



Transit rider: Test2 User2

USF to Busch Gardens  
Busch Gardens to CUTR

Segments:

1. Select agency:

Hillsborough Area Regional Transit

2. Select bus route:

Route 5: 40th Street

3. Select trip day:

Monday

4. Select trip time:

Hour: 11 am Minutes: 0

Search

5. Select trip:

NORTH to University Area TC

6. Choose segment starting bus stop by clicking in the map.

7. Choose segment ending bus stop by clicking in the map.

8. Enter segment name:

Create segment

Enter Trip Name:

Sunday's Trip

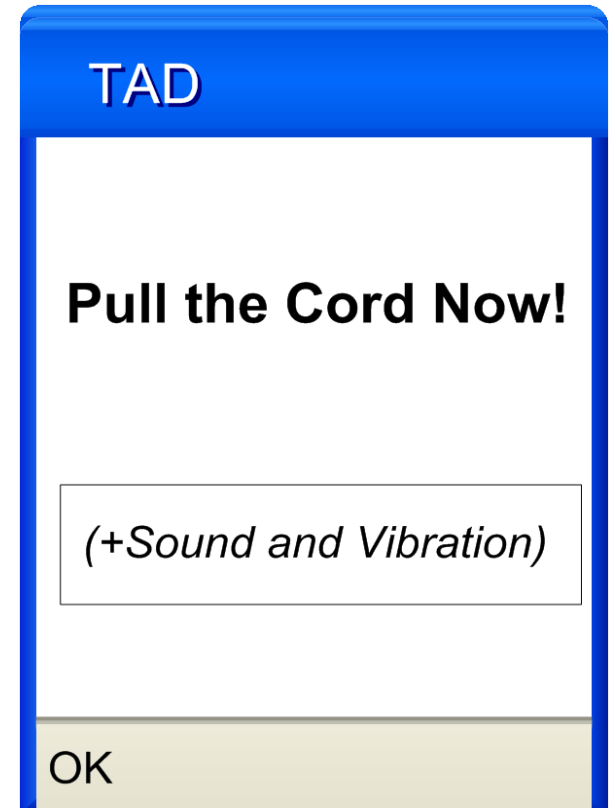
Save trip

Done

# How Does TAD Work?

## User Experience

- ❑ Transit rider selects trip that was planned on website
- ❑ While waiting for bus, rider sees estimated time until arrival and route description
- ❑ When the vehicle is within ~2 minutes of arrival ... "NOW ARRIVING..." shows and user also receives vibration alert
- ❑ When he or she should exit the bus, hears "Pull the Cord Now!"



# How Does TAD Work?

## Parent/Trainer Experience

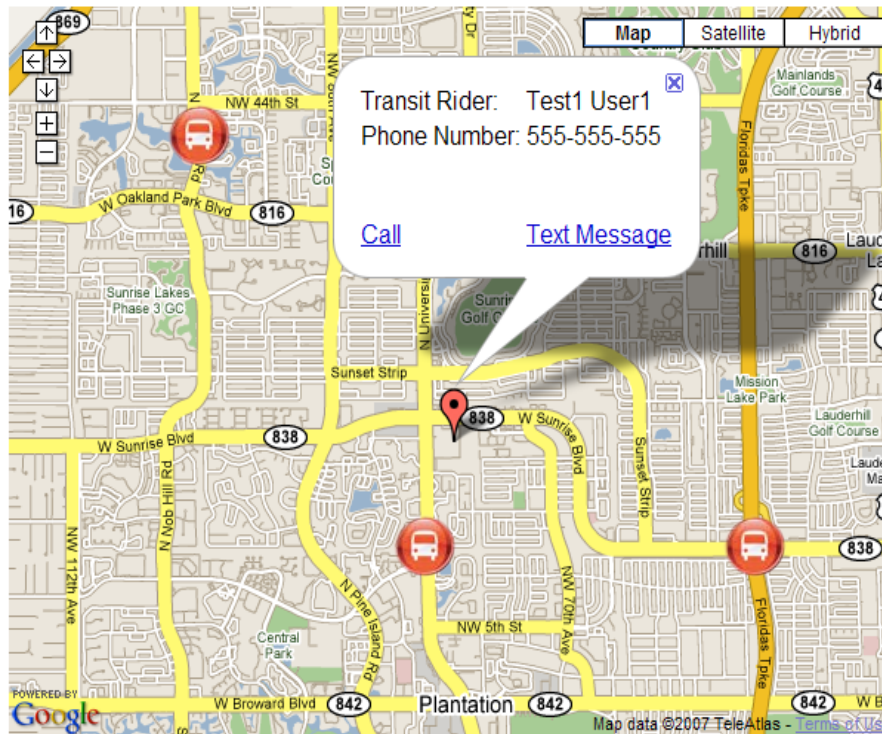
File Manage Users



Real-time Tracking View of Riders

Transit Riders Position (updated every 15 seconds)

Update Position



List of Transit Riders:

Test1 User1 -	Active
Test2 User2 -	Inactive

Create a New Trip

Edit an Existing Trip

To create a new trip:

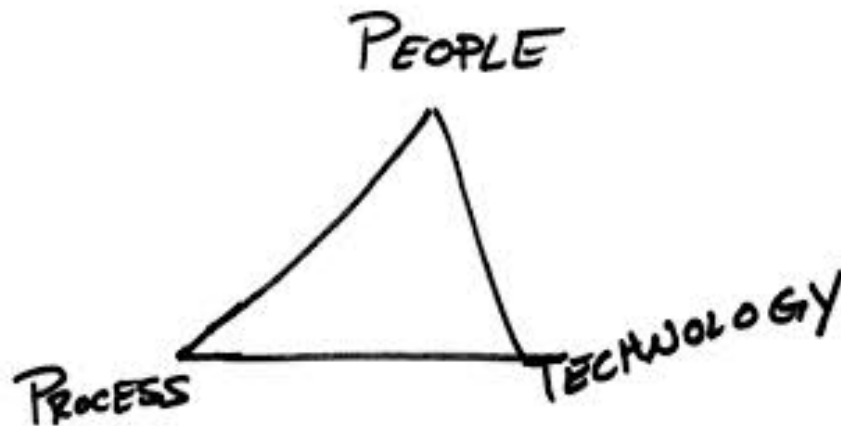
1. Select a transit rider.
- 2a. Click on crate new trip.
- 2b. Click on edit trip.

# Effectiveness of TAD

- TAD was evaluated in an ABAB design with three adults with mental retardation
- Results show favorable outcomes for the 3 participants who were able to pull the bus cord at the appropriate stops and exit the bus only when TAD delivered prompts

# The moral of story

- Technology alone is insufficient to change behavior
- Making it easier to use fixed route service should increase access AND reduce costs to the agency





# How will TAD's success be continued

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- ✓ Patented technologies
- ✓ Pursuing licensing and partnership opportunities
- ✓ Seeking interested transit agencies
- ✓ Moving from working prototype to deployment

# Contact

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