Distributed Transit Rider Messaging (DOT Goal: Livable Communities; Topic: Land Use Planning and Multi Modal Transportation Research)

Uncertainty, lack of transit system awareness, and feelings of isolation have negative impact on all riders, regardless of abilities, thereby reducing community livability and transit demand. Lower transit demand, in turn, decreases economic competitiveness and environmental sustainability. Our goal is to facilitate information sharing as a means of improving the transit experience of all riders, especially for those who cannot drive. Our system, Tiramisu (“pick me up” in Italian), is a social-mobile computing system intended to connect riders and transit service providers using universal design. Tiramisu’s development has been funded by the Rehabilitation Engineering Research Center on Accessible Public Transit and the Traffic21 program. It has been deployed since the summer of 2011 through a spinout company Tiramisu Transit, LLC and is available to the public at www.tiramisutransit.com. We are currently advancing Tiramisu by implementing a rider-to-rider and rider-to-agency messaging system to help improve rider and agency awareness of current transit system state. We will adapt this system to support safety-related messaging and information sharing with other CMU-Penn UTC systems. The system will allow riders to report situations observed and for the transit agency to push out critical news to riders who may be impacted by an unfolding situation.

Desired Outcomes and Metrics

**Year 1**: Implement, deploy and analyze safety-related messaging within Tiramisu.

**Year 2**: Implement, deploy and analyze messaging between Tiramisu and other systems.

Capabilities and Experience

**Lead**: Dr. Aaron Steinfeld (CMU). He is a Senior Systems Scientist in the Robotics Institute at Carnegie Mellon. He is an alumnus of UMTRI and the California PATH transportation research groups and currently serving as a core faculty member within NavLab. He is the PI and Co-Director of the Rehabilitation Engineering Research Center on Accessible Public Transportation (RERC-APT) and the area lead for transportation-related projects in the Quality of Life Technology Engineering Research Center. Recent examples of excellence within the RERC-APT include two academic paper awards, successful deployment of Tiramisu in Pittsburgh, a company spinout, and being named one of the three winners of the 2011 ITSA "**Best New Innovative Products, Services, or Applications**" award.

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