



Center for Advanced Multimodal Mobility Solutions and Education

UTC Project Information – CAMMSE @ UNC Charlotte	
Project Title	Assessment of Parcel Delivery Systems Using Unmanned Aerial Vehicles (Continuation)
University	The University of Texas at Austin
Principal Investigator	Stephen D. Boyles
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Funding Sources and Amount Provided (by each agency or organization)	The University of North Carolina at Charlotte: \$65,000 HDR, Inc.: \$32,500
Total Project Cost	\$97,500
Agency ID or Contract Number	
Start and End Dates	10/01/2018 – 09/30/2020
Brief Description of Research Project	The project will evaluate alternative parcel delivery methods that use UAVs. The different methods to be evaluated include UAVs operating independent from ground vehicle delivery, mobile depots where ground vehicles are equipped with UAVs that aid in the delivery process, and data driven approaches where the UAV provides information on the traffic state to improve vehicle route choice and UAV deployment decisions. The delivery systems will be evaluated under different levels of demand and considering different UAV capabilities in terms of range and allowable parcel size. The current objectives of the project include assessment of different parcel delivery systems that exploit drone traffic



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	<p>monitoring and delivery capabilities. Specifically, we are developing open loop control algorithms for adaptive drone deployment and truck routing. The resulting strategies are compared against exiting delivery mechanisms that do not incorporate traffic congestion. As an extension for this project, we will evaluate novel probabilistic modeling procedures as well as techniques for estimating the probability of non-recurrent congestion at incident prone locations.</p>
<p><i>Describe Implementation of Research Outcomes (or why not implemented)</i></p> <p><i>Place Any Photos Here</i></p>	
<p><i>Impacts/Benefits of Implementation (actual, not anticipated)</i></p>	<p>Project has not begun yet, so no impacts have been realized.</p>
<p><i>Web Links</i></p> <ul style="list-style-type: none"> • <i>Reports</i> • <i>Project website</i> 	<p>https://cammse.uncc.edu/sites/cammse.uncc.edu/files/media/CAMMSE-UNCC-2019-UTC-Project-Information-07-Boyles.pdf</p>