UTC Project Information

Project Title	MPC-668 – Mobile Phone-Based Artificial Intelligence Development for Maintenance Asset Management
University	University of Utah
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Funding Source(s) and Amounts Provided (by each agency or organization)	USDOT, Office of the Assistant Secretary for Research and Technology $39,890 Utah Department of Transportation—$27,000 University of Utah—$23,605
Total Project Cost	$90,495
Agency ID or Contract Number	69A3551747108
Start and End Dates	September 24, 2021 to July 31, 2024
Brief Description of Research Project	Road asset management aims at optimizing the allocation of road maintenance resources considering asset conditions and the associated costs. Understanding the current asset conditions is crucial as the first step of efficient asset management practice. Currently, state DOTs mostly rely on the LIDAR inspection for data collection with high operational cost, which can only be completed once per a couple of years. The lack of timely data would inevitably create barriers in daily maintenance works. Hence, there is an urgent need of developing an efficient data collection technology that can gather the required information on a more frequent basis. To tackle this critical issue, this research aims to introduce an efficient, convenient, and affordable approach to collect maintenance asset data on a much more frequent basis. The proposed technology will use a smartphone app to record videos and GPS locations, which can be easily attached to UDOT fleet vehicles for data collection. Then, by leveraging computer vision techniques, this research aims to develop the Artificial Intelligence (AI) packages for extracting and analyzing road asset information automatically from recorded videos.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	UDOT shows strong interest in applying the developed models to daily operation and maintenance of transportation assets.

Impacts/Benefits of Implementation (actual, not anticipated)	The mobile phone-based AI package developed in this project offers an accurate, efficient, and automated approach to collect and analyze transportation asset data, with over 85% accuracy in transportation asset identification. This enables more frequent inspection of transportation assets, ultimately improving road safety.

Web Links
  • Reports
  • Project Website
	• MPC Final Report – Mobile Phone-Based Artificial Intelligence Development for Maintenance Asset Management