

The Future of Hauling - Autonomous Cargo Transporter

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Figure 1: Platform retrofitted with compute and hardware stack

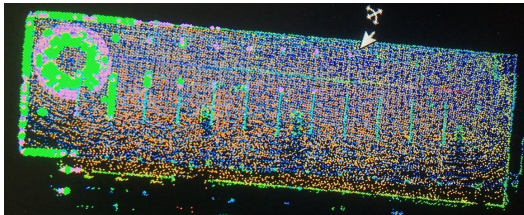


Figure 2: Example of a pre-planned route collected from LiDAR Sensor



Figure 3: Manual operation during map collection by capstone team

Reducing the amount of human error with repetitive tasks that may involve heavy loads can allow an improvement in operating efficiency and human safety, since humans are prone to injury and are required to work for a certain number of hours at a time. Our team is developing a universal platform that will be able to navigate through a pre-planned route autonomously while carrying a heavy load.

The team is split into a mechanical design team and a software and algorithm development team. A compute stack, sensor and hardware retrofitment, and a full software suite allow this platform to maneuver through various settings with ease. Key features including a global planner, path follower, low level control system and a custom steering system are just some of the developments applied to this autonomous platform.

The key application of this autonomous platform is for hauling luggage from airport terminals to load onto airplanes. Airports are dynamic environments in which this development will enhance safety of workers and other surrounding people by removing the human operator from the equation.