Sensing Shared Space

Application of 3D Stereo Vision technology for advanced people flow monitoring

Problem description

The urban population is growing and cities are promoting active modes (walking and cycling) as a healthy and sustainable means of transportation. The space available to accommodate these active modes, however, has not grown accordingly. As a result, some cities are now facing over-crowded spaces, congestion in the bike lanes and safety issues at points of conflict between modes.
There is an increasing need for accurate simulation models and data analysis tools to support better planning, design and management of urban mobility infrastructure for active modes based on empirical insight and behavioural theories.
This graduation project will build on previous work for the AMS Institute in collaboration with Arup. In that study a proof of concept model for shared space behaviour was developed and implemented in a microscopic simulation tool (MassMotion) on the basis of *manual* video analysis of a shared space in Amsterdam. The objective of this project is to take advantage of the major advances in sensing technology and computation to improve the first part of the workflow: data collection and analysis.

Assignment

To assess the potential of 3D Stereo Vision* technology for advanced people flow monitoring and analysis by performing a pilot at real locations. In this pilot, the movement and interaction of active modes in the built environment (real situations at e.g., public shared spaces, campus, office buildings) will be captured using a 3D Stereo Vision sensor which is able to identify and track people and other moving objects.
* https://en.wikipedia.org/wiki/Computer_stereo_vision

This will likely involve:
-Device installation/calibration, selection of detection location
-Data collection, scenario design
-Data processing, data analysis on active mode behaviour interpretation

Information:

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