

Master Thesis Proposal

1. Student Information

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Date and Signature

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2. Master Thesis Information (use as many pages as needed)

Title: Ground surface estimation combining stereo data and optical flow.

Description: The thesis consists of the development of an algorithm to estimate the ground surface in front of a car using a disparity map from a stereo camera pair and optical flow between consecutive frames in time. The project will be developed in the framework of an advanced driver assistance system for a street vehicle. The ego-motion of the vehicle will also be estimated to distinguish between moving and static points in the world reference frame, so that only static points are used for the ground surface estimation.

Aims:

- Design and implement an algorithm for ground surface estimation.
- Implement an algorithm for ego-motion estimation.
- Integrate the above algorithms to improve estimation.
- Develop the system under the company's testing framework to be able to test it in a real car.



Tasks:

- Literature review.
- Design the architecture of the system.
- Design the ground surface estimation algorithm.
- Implement the ground surface estimation algorithm.
- Implement the ego-motion estimation algorithm.
- Integrate the ground surface and ego-motion estimation algorithms.
- Instrument the system for 3D visualization and internal inspection.
- Testing and results analysis.
- Writing of thesis dissertation.

Planning:

See attached page.

3. Supervisor Information

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Date and Signature

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