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3D Visual Perception for Self-Driving Cars using a Multi-Camera System: Calibration, Mapping, Localization, and Obstacle Detection

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Abstract

Cameras are a crucial exteroceptive sensor for self-driving cars as they are low-cost and small, provide appearance information about the environment, and work in various weather conditions. They can be used for multiple purposes such as visual navigation and obstacle detection. We can use a surround multi-camera system to cover the full 360-degree field-of-view around the car. In this way, we avoid blind spots which can otherwise lead to accidents. To minimize the number of cameras needed for surround perception,

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