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30330 Image Analysis with Microcomputer

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Project in Image Analysis with Microcomputer, December 2015

Vision Based Rocket Tracking

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Abstract

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Problem Analysis

2.1 Problem description

To be able to track a rocket during launch with a vision based tracking system, we need to examine the circumstances of the launch, the limitations of the tracking system and physical restraints.

The rockets which are tracked is going to be unmanned and with suborbital trajectories. This results in the rockets having a high accelerations at launch, at around 15 G. The tracking system must keep the rocket within the frame of the picture at all times. This leaves some constraints to the frame rate, resolution and positioning etc. of the camera. For the tracking system to be able to calculate the relative position of the rocket, the global position and orientation of the camera must be known.

- As preliminary research, we will make a scene analysis of a rocket launch in order to determine the necessary conditions for tracking a fast accelerating rocket.

- The scene analysis and the resulting constraints will be used to further specify the optimal solution for tracking a rocket during launch.

- Furthermore, the tracking system should be able to estimate the trajectory with the goal of finding the impact site of the rocket.

Evaluation & Tests

3.1 Problems during the project

Conclusion