A Novel Stereo based Obstacle Avoidance System for Unmanned Aerial Vehicles

Abstract

The use of autonomous unmanned aerial vehicle (UAV) has been on the rise. They are used to replace an ever-increasing amount of labor. There is a need for unmanned aerial systems to operate safely in the environment around them. The work in this paper aims at creating an obstacle avoidance system using Stereo Vision. The work uses standard block matching algorithms. OpenCV and the KTTI Vision Benchmark suite is used. The ArduPilot SITL simulator is used for running the algorithms and displaying the results. The droneapi is an application that is used to access the UAV's information and describe new kinds of flight behavior. The application created is known as STOBA (Stereo Based Obstacle Avoidance), which was created to run within the ArduPilot SITL, in order to provide the mentioned obstacle avoidance capability.

References

https://github.com/rmackay9/ardupilot-balloon-finder

Index Terms

Computer Science
Automated Systems

Keywords

Stereo Vision, Obstacle avoidance, UAV, OpenCV