

ABSTRACT

This thesis presents a Design and integration of a robust obstacle avoidance and navigation autonomous module (drone). It explores the problems in the current solution of obstacle avoidance and tries to reduce it with a new design. It also explores opportunities to enable and improve the functionalities of obstacle avoidance and navigation using modern techniques. This drone is completely autonomous and it avoids by itself. Only coordinates of the target is given to drone and it reaches at the target by itself. Understanding different types of sensors for navigation, target finding and obstacle avoidance is required for the implementation of the design and a study of the same is presented as a background. A research on an autonomous car is done for better understanding autonomy and learning how it is solving the problem of obstacle avoidance and navigation. The implementation part of the thesis is focused on the design of a robust obstacle avoidance autonomous module. Similarly, the end to end control with different sensors input to micro-controller, according to sensors reading micro-controller gives instructions to the flight controller, which controls the whole drone. Flight controller rotates the drone according to controller instructions. For navigation Gps is used. In the end, a robust obstacle avoidance system is developed.. A possibility of an end to end control is also verified by obtaining a proof of concept.