



Autonomous Flight For Drones

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Abstract

An unmanned aerial vehicle (UAV), commonly known as a drone, is an aircraft without a human pilot aboard. UAVs are a component of an unmanned aircraft system (UAS); which include a UAV, a ground-based controller, and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers.

The goal of this study is to create a autonomously flight for drone according to the coordinates entered by the user. During the flight, the drone will calculate the shortest route to the destination and will determine a new route to overcome the obstacle if there is any obstruction. Besides these, the user can specify some coordinates and the drone does not enter the forbidden zones. We will do all this in a simulation program. Ultimately, this system should create providing autonomous flight .

Motivation

Drone may encounter many obstacles when moving from one point to another and drone must reach the target point without hitting the obstacles and we are automating this system.

Solution

During the flight, the drone will calculate the shortest route to the destination and will determine a new route to overcome the obstacle if there is any obstruction. Besides these, the user can specify some coordinates and the drone does not enter the forbidden zones. The intention is, in fact, to ensure that the drone does not enter military territory or that it does not exceed the stated height when near the airport. Finally, when an emergency is encountered during the flight, the drone will notice the danger and return home.

Results & Conclusion

In conclusion ,unmanned aerial vehicles commonly known as drones have some characteristic properties such as collision avoidance, GPS coordinates for UAVs navigation method and optimization of battery lifetime. Our project aims at developing navigation algorithms for autonomous drones. The project will be based on using visual maps describing indoor and outdoor environments. In addition, the evaluation measurements, and obstacle avoidance will be based on information from virtual sensors. The implementation will be in a simulation environment.

Acknowledgement

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Introduction

Drone may encounter many obstacles when moving from one point to another and drone must reach the target point without hitting the obstacles and we are automating this system. Our project goal is to make the drone autonomous flight. Drone will flight to the user-specified destination and drone will notice the obstacles and the it will change its way to avoid hitting the obstacles.

The purpose of this project is to autonomously fly the drone according to the coordinates entered by the user. During the flight, the drone will calculate the route to the destination and will determine a new route to overcome the obstacle if there is any obstruction. Besides these, the user can specify some coordinates and the drone does not enter the forbidden zones.



Figure 1 – Start & End Point

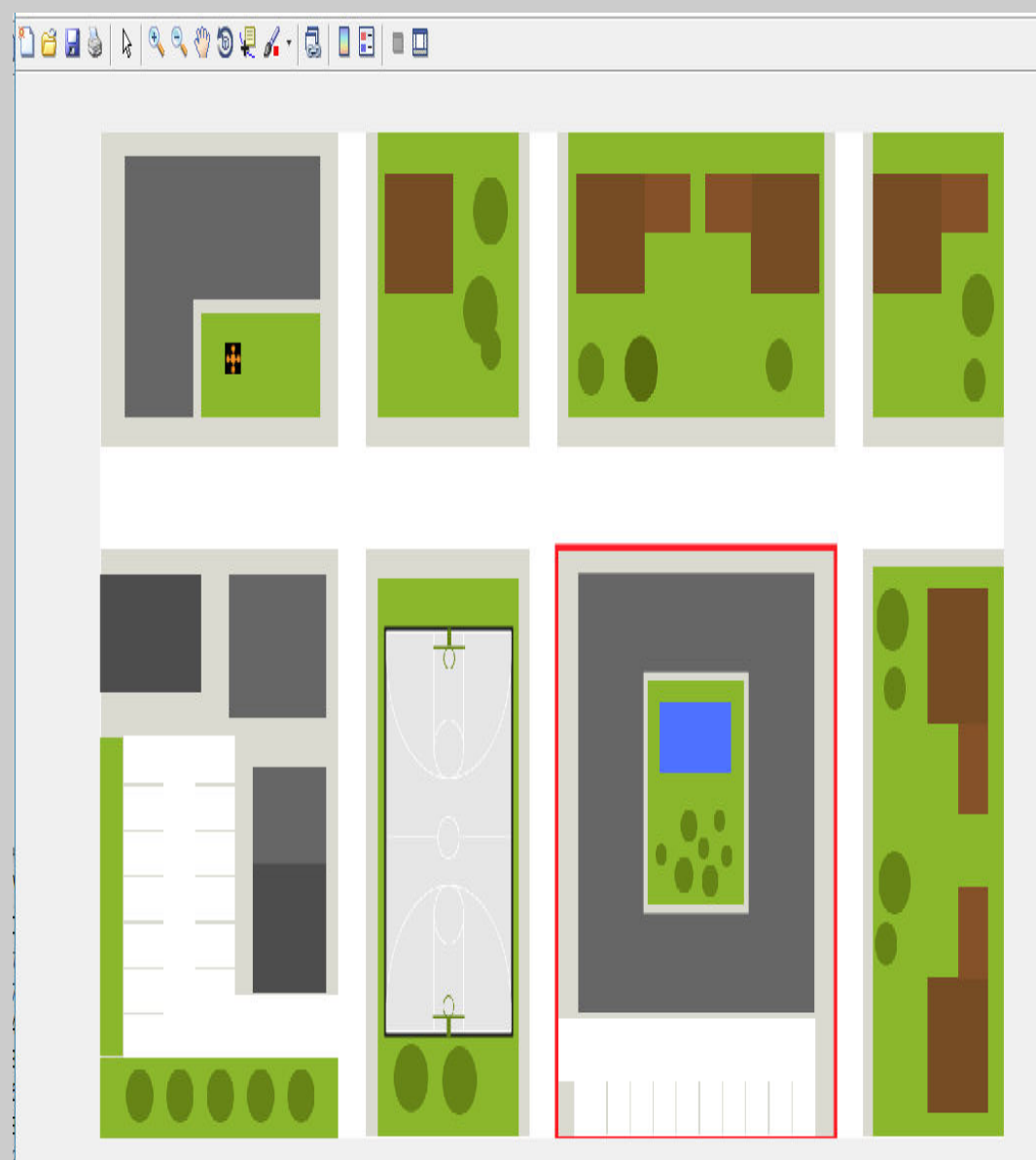


Figure 3 – Finished Product

