

# Autonomous Drones

This project aims to design an autonomous quadcopter (drone) that can perform some simple tasks, such as navigating from point A to point B and back to point A. The team will make use of mathematical models and control theory to create algorithms for an autonomous drone that learns. By controlling the speed of the four propellers, a quadcopter can roll, pitch and accelerate along the common orientation. On board is also a battery, a control board, various sensors and wireless radios. Drones need automatic feedback control in order to be able to fly well.

## Project Requirements

The quadcopter must operate autonomously and make decisions based on different conditions, such as avoiding obstacles, etc.

Zero human manipulation when performing a task

Efficient use of multiple sensors is necessary.

The final outcome must be an autonomous drone performing a well-defined task.

## Team Requirements:

High motivation

Excellent programming skills

Good in Math

Knowledge in control theory is a plus.

Knowledge in shell scripts or python programming is a plus.

## Team Responsibilities:

This project requires one electrical engineering student and one computer engineering student. Electrical engineering student is responsible for designing the control board interfaces with various sensors and camera. Computer Engineering student is responsible for designing the control algorithms and implement them in C. Both students are expected to contribute to all aspects of the project.

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