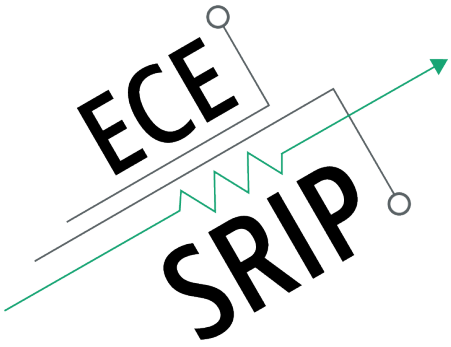

FACULTY MENTOR

Atanasov, Nikolay

PROJECT TITLE

Build a robot from scratch and make it move!

PROJECT DESCRIPTION

This project will integrate hardware, software, and theoretical aspects of robotics with the following objectives:
1. Hardware: assemble a quadrotor or autonomous car robot. You will learn how to put together a frame, flight/motor controller, main computer, power, and sensors.
2. Software: simulate a quadrotor or autonomous car robot. You will learn about the robot operating system (ROS), the physics simulator Gazebo, sensor drivers and calibration.
3. Theory: state estimation and control. You will learn to estimate the position and orientation of the robot using sensory data (Lidar, RGB camera, IMU). If time allows, a controller for hovering (quadrotor) or path following (car) will be developed.

INTERNS NEEDED

2-3 BS/MS students

PREREQUISITES

MS or undergraduate. Candidates are expected to have basic knowledge of integrated circuits at the level of ECE 35, soldering and wiring skills, and programming experience at the level of CSE 12. Knowledge of estimation theory at the level of ECE 271A/ECE 276A is preferred but not required.