Autonomous UAV Helicopter

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Introduction

Unmanned Aerial Vehicles (UAVs) use environmental sensors and time-critical computation to replace a pilot's awareness and decision making. We present a helicopter UAV that is capable of stabilized, directed flight.

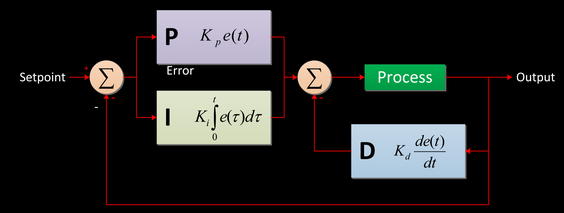
Software

More than 8,000 lines of code across five devices and 11 threads provide flight support, stabilization,

Hardware

The flight system consists of five microprocessors, eleven sensors, four servos, three batteries, a ground station, and other supporting hardware. Communication is provided through I^2C, RS-232

Stabilization



Proportional-Integral-Derivative feedback loops are used to stabilize the roll, pitch, yaw, and heading of the helicopter by comparing sensor readings to desired levels and adjusting the flight servos accordingly.