



The
University
Of
Sheffield.

Automatic
Control &
Systems
Engineering.

ACSE OPEN DAY

VTOL

A **VTOL** unit is a Vertical Take-Off and Landing unit which has a single rotor and is based on a helicopter. This project allows students to learn the fundamental building blocks of control systems. Students learn how to design the control algorithms to make the rotor do various tasks, such as move up and down or remain at a steady height. In this demo, the VTOL uses closed loop control which allows it to compensate for any tap or nudge to ensure it recovers itself and goes back to a constant height.

The possibilities for this tech are endless as the knowledge applied to make the VTOL work can be implemented into programming specialist Unmanned Aerial Vehicles (UAV), such as Drones and Quadcopters, which can be used to track people or objects in zones that are too dangerous or not big enough for manned air craft, helping in search and rescue operations.

Research Fellow, Dr Jonathan Aitken, said:

“In the future drones could be particularly useful in areas where we can't send humans, so a hostile or unfriendly environment, for example space or in the nuclear environment. We can't send a human to control the robot, therefore what we need to be able to do is for the robot to understand the space it is in and take decisions itself.”