

Student Name	Andrew Berry
Company	QinetiQ
Research University	Leicester
Academic Supervisor (s)	Dr Dawei Gu Dr Ian Postlethwaite
Title	Local Motion Planning for Unmanned Vehicle Operation within Complex Obstacle Rich Environments
Abstract	<p>This programme of research is concerned primarily with local motion planning tools that help enable unmanned vehicles to operated within complex obstacle rich environments. The specific application of interest is the military use of micro air vehicle (MAVs) in direct support of ground troops operating in urban environments. The approach taken to this problem is a systems engineering one, where significant effort is directed towards defining the context within which technical work takes place. The aim of this approach was to ensure that the technical work was conducted with a view to required military needs and realistic operational environments. The specific technical focus is 'situation aware' trajectory tracking, i.e. allowing an unmanned vehicle to track a pre-defined global trajectory with reference to the surrounding obstacle space. This problem is posed within a receding horizon framework, where feasible local motion trajectories are continually optimised considering available vehicle performance, local obstacle space & the desired global trajectory.</p>