

Aeronautical Engineering Group Design Project Presentations

Joint event with the Loughborough Branch of the
Royal Aeronautical Society

Tuesday 14th June 2022, 6.30pm – 8.30pm
Room EHB104

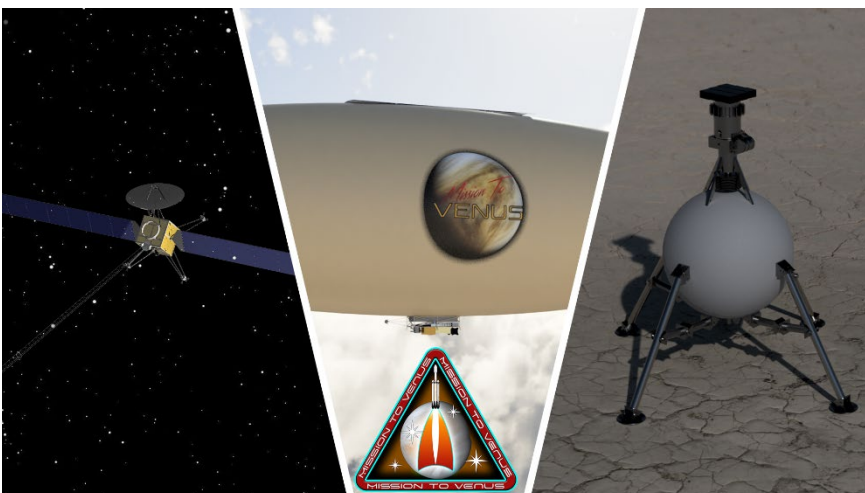
“Nerodia” Firefighting Aircraft



Crassus Aviation presents “Nerodia”: a purpose-built, large-air-tanker style firefighting aircraft designed to tackle wildfires predominantly on the US Pacific Coast. The rapidly increase occurrence & size of wildfires combined with retiring existing aircraft necessitates new, technologically advanced solutions. The aircraft’s payload consists of 6000 US-gallons of retardant in a bespoke-

designed, active-cg-shift-mitigating tank with a variable dispersion rate pintle nozzle. Features include autonomous flying capabilities, with a mission specific flight computer for dropping multiple indirect attack lines to halt propagating wildfire fronts.

Mission to Venus



Mission To Venus (MTV) plans to deploy an Orbiter, that will also control the spacecraft during the transfer to Venus, a blimp in Venus’s atmosphere and a Lander on the surface of Venus. Since 1984, no space agency has sent a mission to the surface of Venus. MTV plans to be the first mission to place a lander on the surface of Venus that will last for more

than 10 hours, while previous missions have only collected scientific data for an hour.

“Achelous” RNLI Support UAV

Tasked with finding a UAV solution to aid the RNLI in saving lives at sea, led to the development of Achelous. A fully autonomous 11.9kg aircraft, able to fly in harsh conditions for up to 3 hours. The best way to aid RNLI missions was identified to be reducing



the search time. Refinement of searching algorithms alongside the camera systems allows for nearly 5 square nautical miles per hour to be searched when looking for a person in the water. Designed to provide the most effective assistance with a minimal burden on present practices. Achelous will be invaluable in helping the RNLI save lives from the skies.

“HyAero” Hydrogen Powered Aircraft

With the ongoing environmental issues facing the planet, a significant amount of pressure is being placed on the aviation industry to develop greener solutions. Hydrogen presents a promising sustainable alternative to current aviation fuels owing to its higher specific energy than kerosene. However, due to its low volumetric energy density, significant changes in aircraft design and airport



infrastructure are required. HyAero presents the Hy500, a 150-seat, fuel cell-battery-electric airliner powered by green liquid hydrogen that aims to decarbonise aviation by 2050 through the elimination of CO₂ and NO_x emissions.

**For further information contact: Dr Paul Cunningham,
p.cunningham@lboro.ac.uk, 01509 227280**