First Steps Towards the Kingston Space Shot: Low Altitude Test Vehicle

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ABSTRACT

Kingston University London students supported by sponsors are working towards the most ambitious educational space activity the UK has ever seen: a low cost Space shot or rocket launch to beyond the 100 km Karman line, with vehicle recovery.

The Kingston rocket launch aims to contribute to the UK civil space strategy 'Access to Space' element, the National Space Technology Strategy’s Access to Space roadmap, and it is hoped it will act as an inspiration to a new generation of scientists and engineers.

The first step in a staged development programme began in summer 2015, with the design of the low altitude test vehicle and initial testing of its hybrid rocket engine propulsion unit.

Kingston University's School of Aerospace & Aircraft Engineering MEng class have been given a target of designing a vehicle capable of reaching an altitude of 25 km (80000 ft) that can be fully recovered for multiple uses, and to conduct an initial test launch in the summer of 2016.

Design work coupled with engine static tests at the KURocketlab began in July 2015. The vehicle will be designed around an engine that will demonstrate the full capability of the KU Rocketlab small space propulsion test facility. The engine and rocket Preliminary Design Review is planned to take place immediately prior to RISpace 2015.

Subject to support from existing and new sponsors who are assisting the student project team, the intention is to commence build by the end of 2015, conduct a system testing in early 2016 and be ready for launch by summer 2016. Success will be the first step on the road to a low cost sounding rocket capability and ultimately, with industrial and academic partners, improved UK access to space.

KEYWORDS:   structure hybrid bipropellant engine testing instrumentation sounding rocket

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