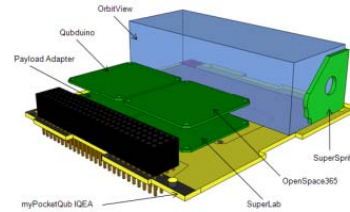




MYPOCKETQUB IQEA 442

an open source spacecraft / payload



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 Trevor Seabrook
 Adam Stevens
 Rupert Taylor
 Johannes van der Horst
 Alonzo Vera
 Antoine Verhaeghe
 Camilla Weiss
 Jack White and others

Cranfield University
 Exmouth Community College
 Imperial College
 Lancaster University
 Open University
 UCL / MSSL
 University of Bath
 University of Bristol
 University of Huddersfield
 University of Southampton
 University of Surrey
 and others

Michael Johnson

spaceprojects@ukseds.org

UK Space Conference 2011
 CubeSat Session

a  initiative

University of Warwick
 July 4, 2011

in association with



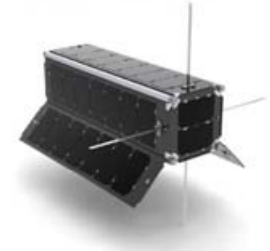
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UKube graphic courtesies: Clyde Space Ltd

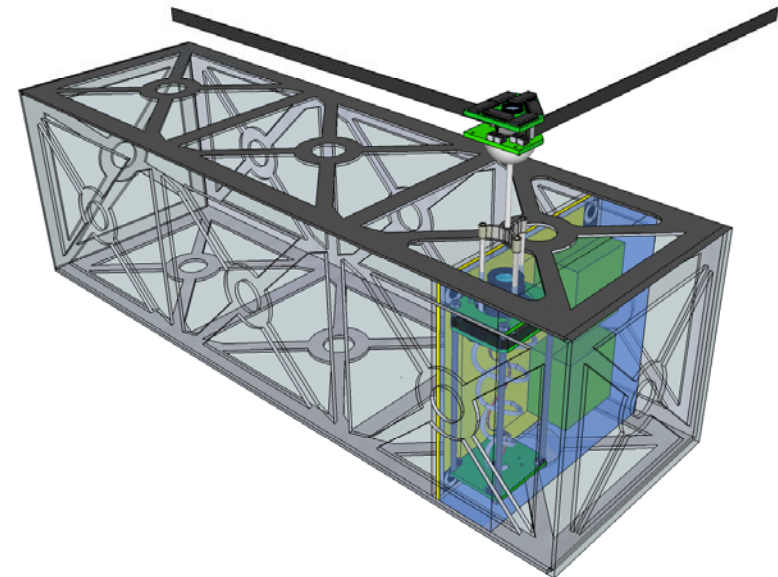
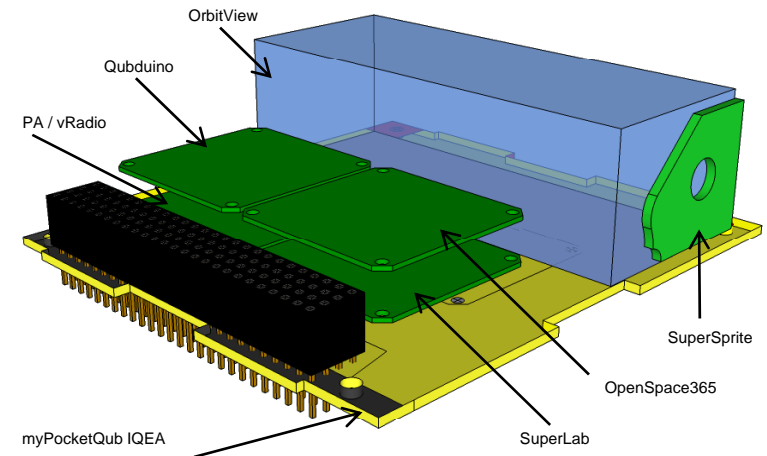


Pocket spacecraft with five payloads



Outer Space Act prevented use of free launch given to UKSEDS so reformatted as UKube-1 compatible myPocketQub IQEA + vRadio + 5x PocketPayloads:

- **OpenSpace365**
Arduino with sensors allowing 365+ school pupils, university students and hobbyists to develop and fly virtual software payloads on-orbit for a day each
- **OrbitView**
Imaging payload to capture 360 degree panoramas from multiple points on-orbit to allow anyone to 'look out of the window' of UKube-1
- **Qubduino**
Arduino with Field Programmable Gate Array (FPGA) to space qualify GBP 10 FPGA, test self repairing algorithms and host advanced virtual payloads
- **SuperLab**
Physics experiment to characterise thin film superconductor materials
- **SuperSprite**
Satellite on a chip proof-of-concept with solar cells, energy storage, micro-controller and transceiver





Participation open to all



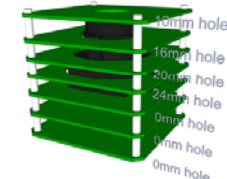
- Whole project is open source
 - ukseds.org/projects/ukube
- OpenSpace365.org
 - Anyone can use the spacecraft for a day
 - Open source hardware and SDK on web
 - Beta testers wanted now
 - General availability: T-3 months
- OpenMissionControl.org
 - Open source, open access, cross platform (Windows, Mac OS X & Linux)
 - For mission controllers and public
 - Beta testers wanted now
 - General availability: Q4 2011
- OrbitView.org
 - Interactive panoramas from space
 - General availability: T+1 month



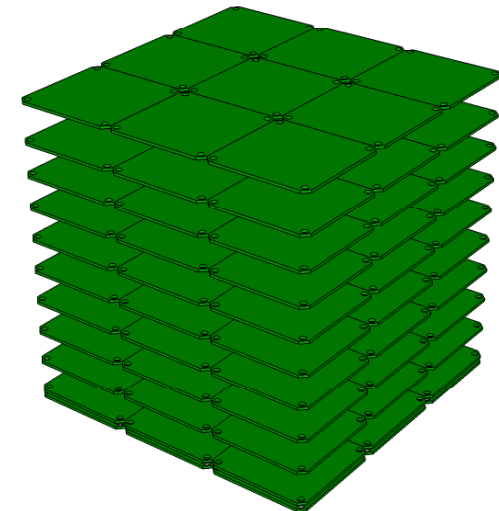


Where is this leading?

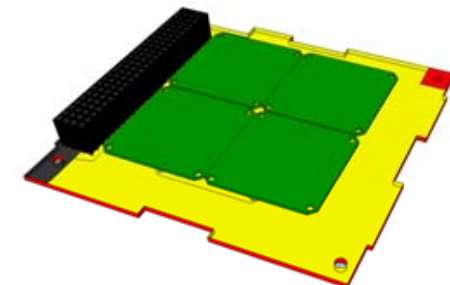
- Cheap access to space for all
 - < GBP 1000 per PocketPayload to LEO
+ GBP 1500/PP/YEAR Outer Space Act surcharge
 - < GBP 5000 per PocketPayload to GTO/GEO
+ GBP 1500/PP/YEAR Outer Space Act surcharge
 - Realistic, profitable prices buying launches and ride shares on the open market for commercial, scientific and personal applications
- Spin outs and other benefits
 - 50+ students with hands-on flight hardware development experience
 - 100's (1000's?, 10000's?) of inspired children
 - PocketSpacecraft.com launch broker/integrator
 - CubeSat-on-Demand from GBP 50/hour
 - Open Source Space Bureau
 - Flight heritage for myPocketQub IQEA + 5 key PP
- The personal space age



1Q / 6PP myPocketQub



1U / 99PP CubeSat PP-POD



0.2U-3U / 4-288PP myPocketQub IQEA



Q&A session



UKSEDS UKube-1 Payload Team Leads

Find out more: ukseds.org/projects/ukube

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a  initiative

@ukseds

in association with



Photo courtesy: M.Barschke