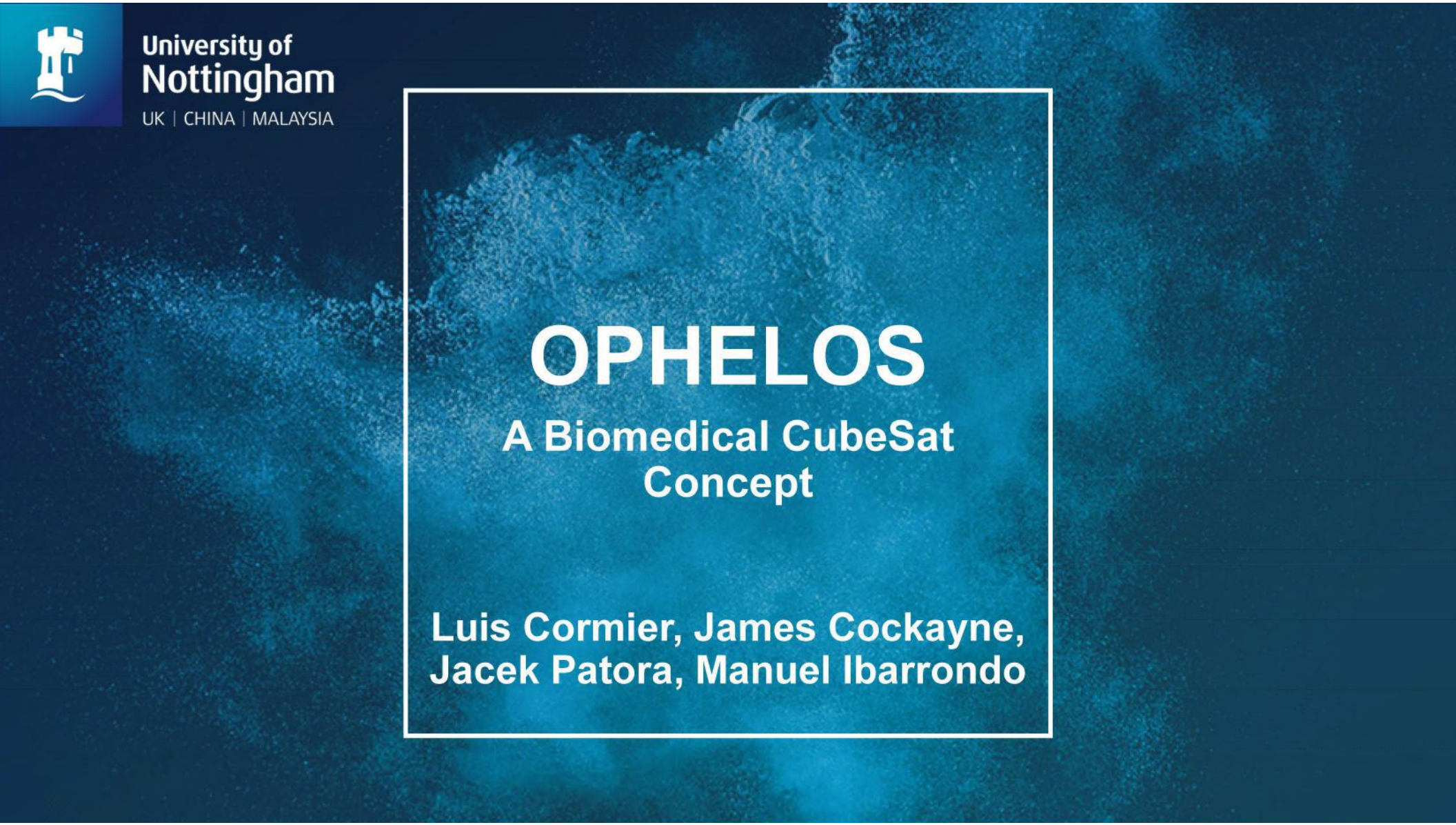
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OPHELOS
A Biomedical CubeSat
Concept
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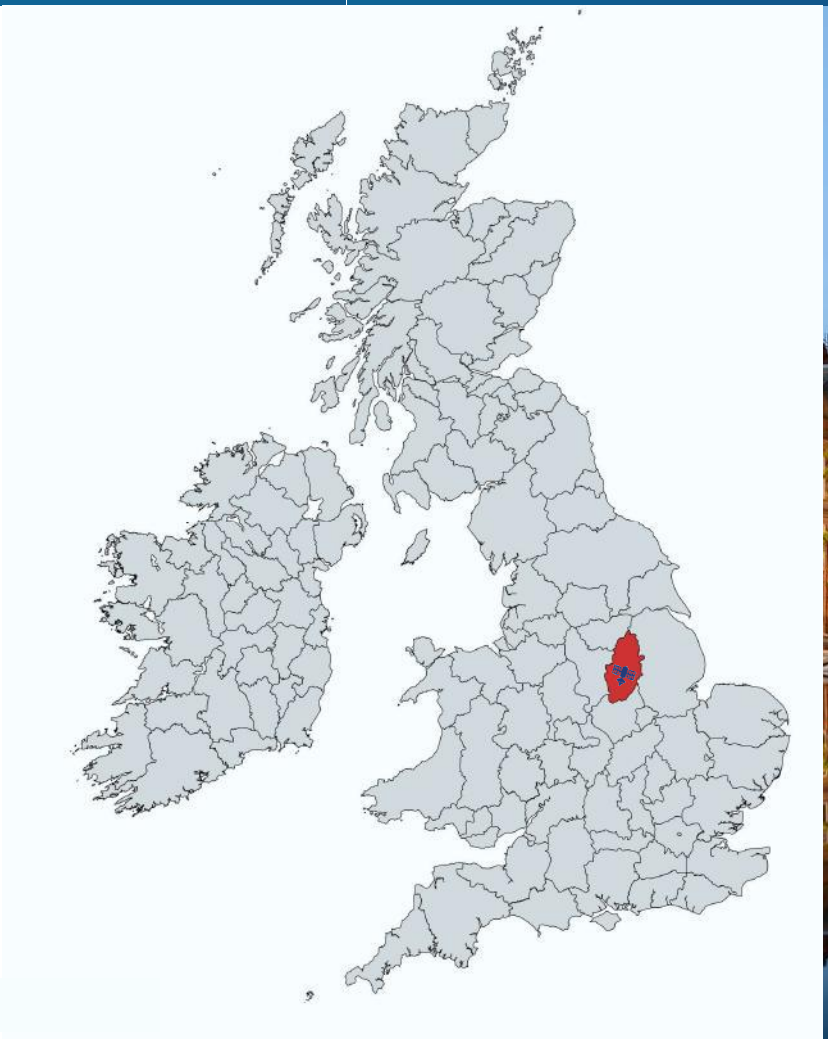

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What's the problem?

- Current methods of biomedical research in space is expensive and time-consuming
- These constraints make it difficult for such missions to be performed by universities
- Typical biomedical missions performed on the ISS or dedicated satellites take years to complete, making it difficult for students to be involved in the process

- Keeping things alive in space is *hard*…
- High radiation, extreme temperature, no oxygen, lack of pressure…
- All these things require energy to mitigate against
- Need to develop systems to control all of these factors

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Background

- GlioLab flew aboard STS-134, studying glioblastoma in the space environment over a 15-day mission

- OPHELOS aims to build on the results of GlioLab, to develop a dedicated long-duration mission platform to study biological samples in the space environment

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OPHELOS

- OPHELOS aims to build a platform in-house to monitor and control the environment within a CubeSat, and relay information about the biological sample back to Earth for analysis. Platform is designed to be adapted for use in any biomedical mission in the future
- Student involvement is in the heart of the OPHELOS project
- Project rose in its current form due to student enthusiasm in the subject, has welcomed new members with a passion for the project
- Opportunity for students to join at any stage of their degree, and stay with the project for years
- Provides a hands-on experience of the realities of all stages of space mission design, developing key skills in planning, organisation, and teamwork, among others

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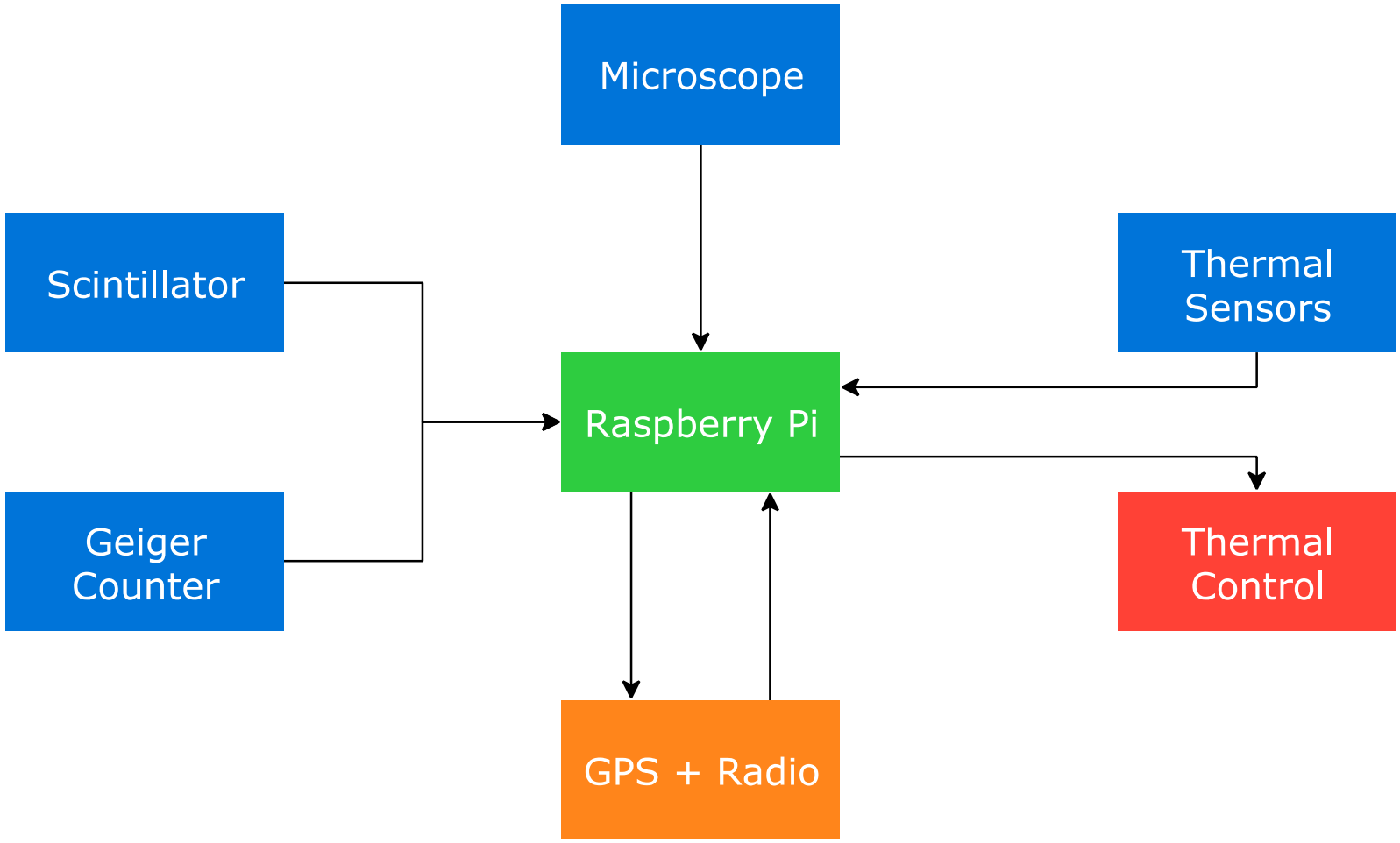
Phase 0: HAB Test



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Future Plans

- Following results of HAB test, the systems involved and overall design will be analysed to determine if they are suitable for the required goal
- Full orbital mission aimed to be performed aboard a CubeSat platform in the next few years
- Potential for dedicated platform in the future, providing opportunities for long-duration biological experiments in high-radiation, microgravity environments

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Thanks for listening!

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