



LEAVES



Lofted Environmental and Atmospheric Venus Sensors

Ultra-lightweight, low-cost, atmospheric sensor swarms

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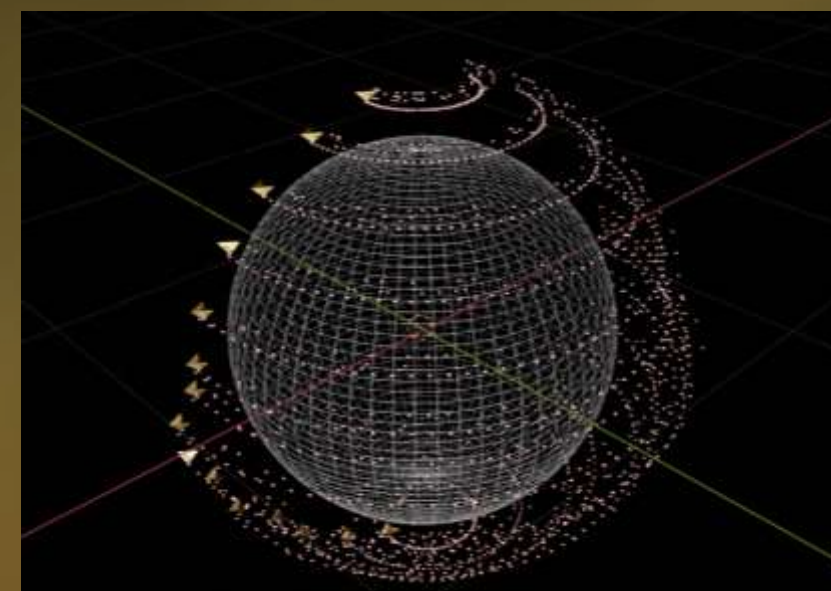


VENUS EXPLORATION NEEDS

- Direct in-situ measurement of atmospheric dynamics and composition, at many locations simultaneously
- Correlated data with spacecraft or ground observations

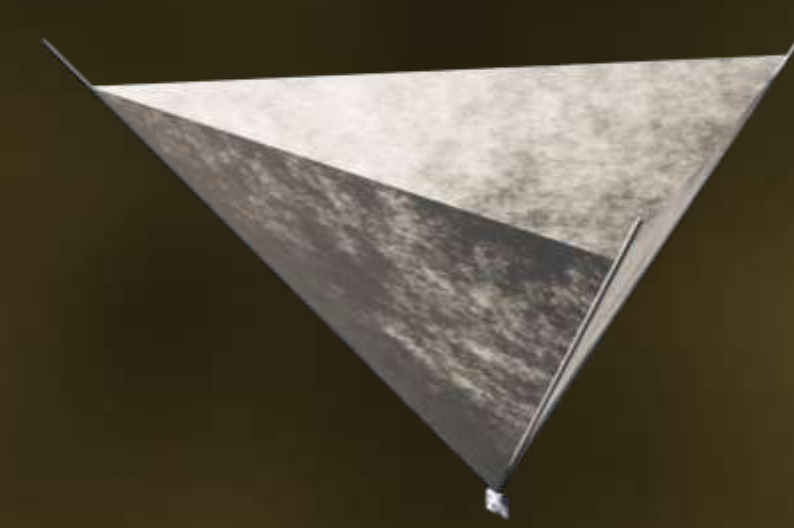
Distributed Deployment

- Broad simultaneous sensing over wide area
- Passive drifting for ~ 9 hrs
- Atmospheric capture takes 1-4 weeks
- Science operations between 100 and 30 km altitude
- Low ballistic coefficient (0.173) means that each probe *can survive direct atmospheric entry from orbit*

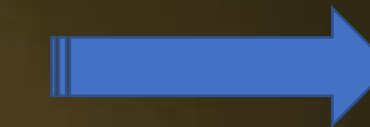


PHASE II EFFORT

- Collaboration with missions-in-development
- Prototyping in progress with conventional components
- High altitude balloon deployment and work toward demonstrating orbital re-entry at Earth
- Structural refinement to allow for longer atmospheric dwell time
- Distributed communications and tracking approaches being modeled and prototyped with OTC low-power and software-defined radios



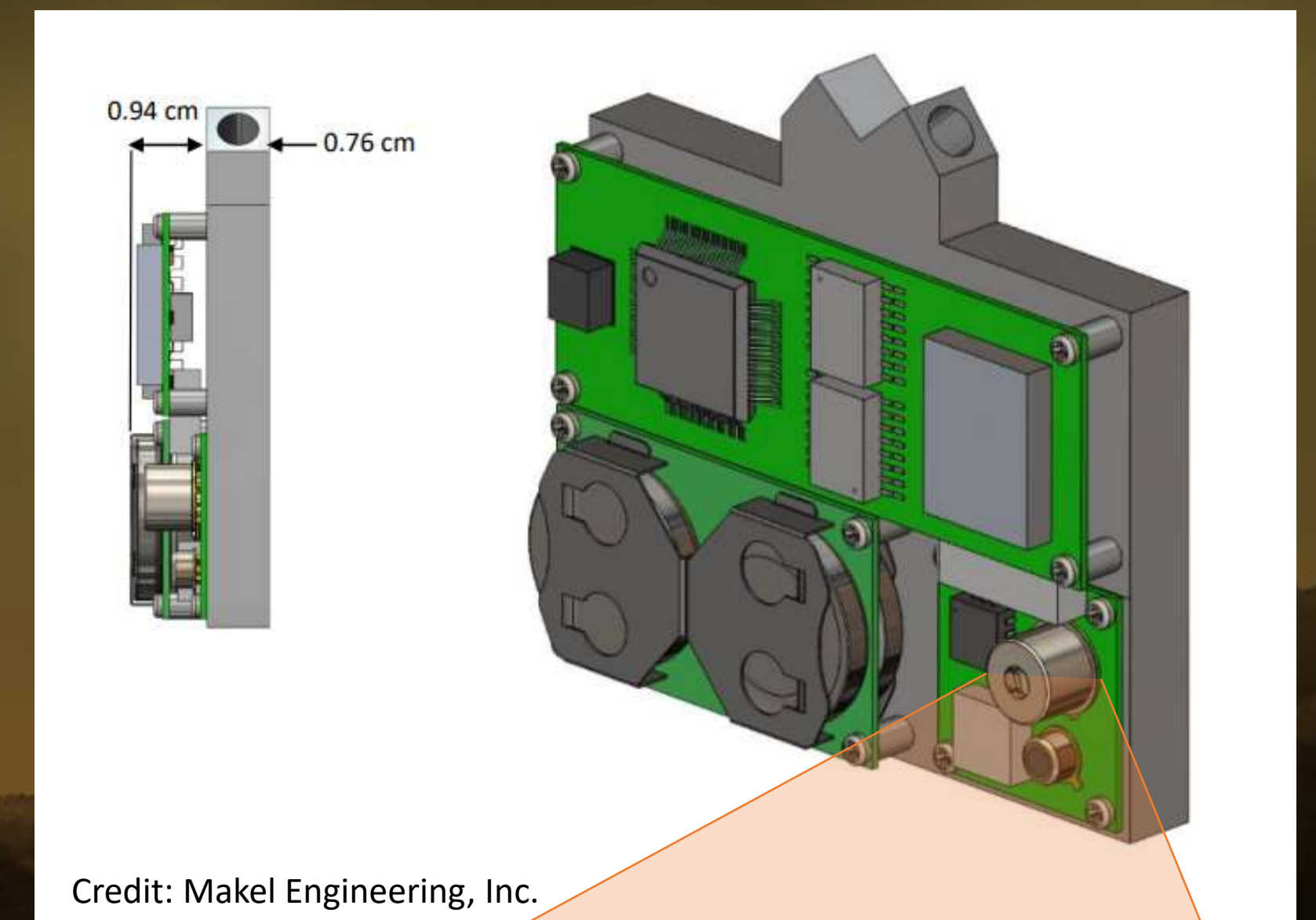
Phase I Design



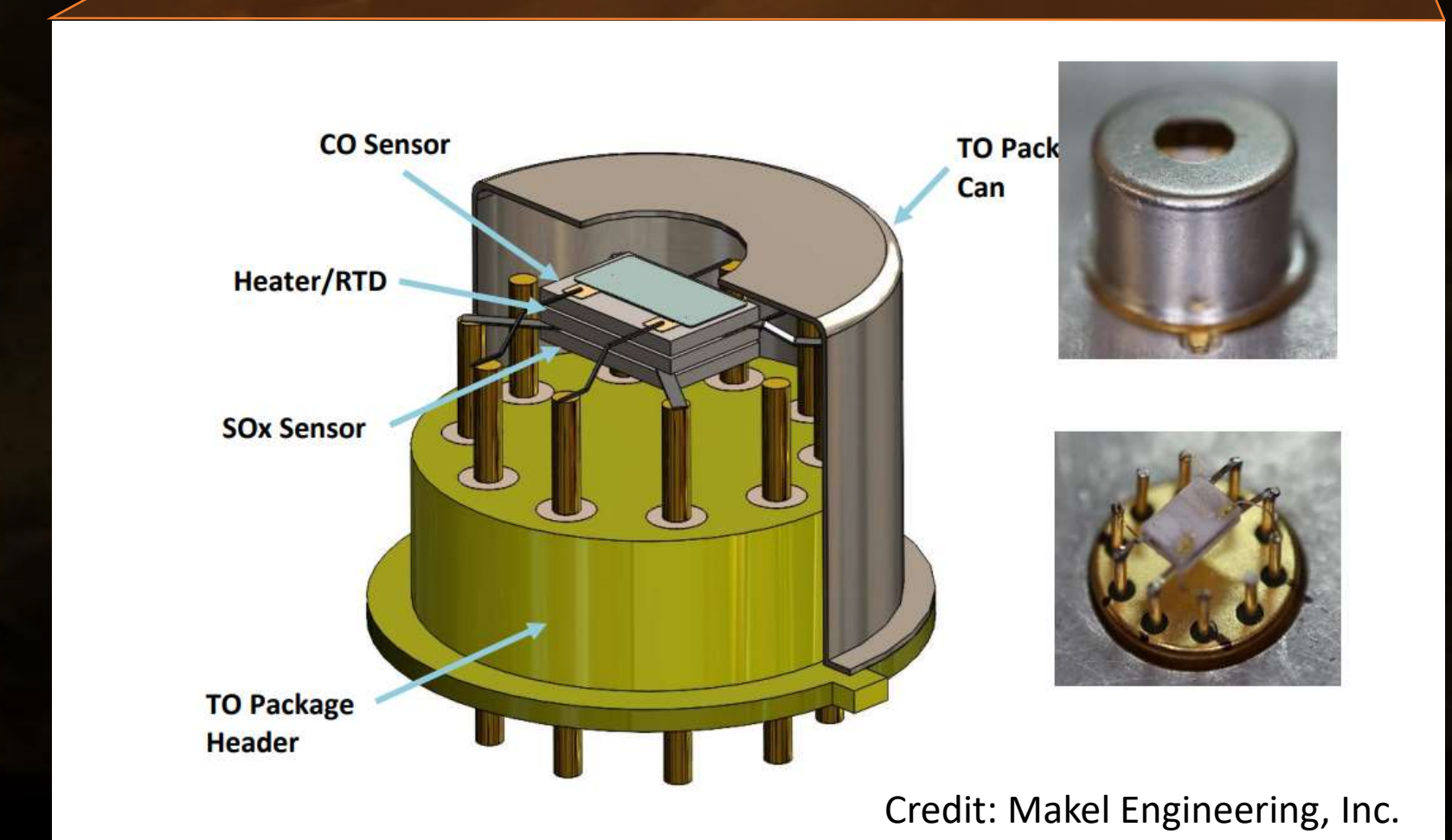
Phase II Design

PAYLOAD

- Single board sensor/electronics payload for atmospheric science
- Satisfies strict SWaP requirements
- Mass: 40 g
- Power: 1.5 W
- 7 x 5 x 1.5 cm
- Modular for prototype maturation



Credit: Makel Engineering, Inc.



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