WEARABLE

ECOSYSTEMS FOR

ALIEN ENVIRONMENTS

a project by

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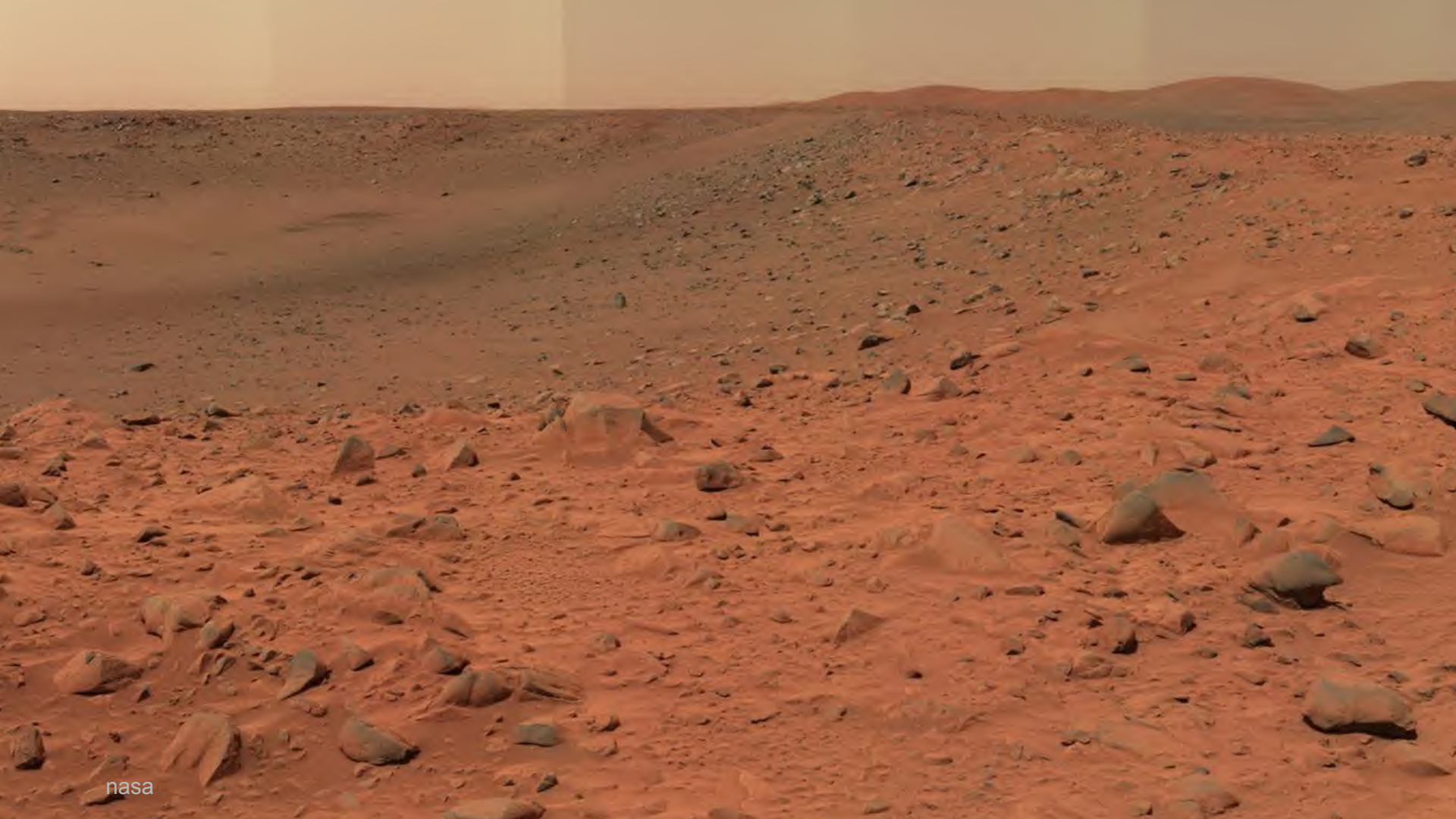
Design + Technology MFA candidates

Parsons The New School for Design

7.3 Billion 2013
projected 10.5 in 2040

daily maverick


nasa

Statement

Global warming, over pollution, species extinction, technological singularity, ecological destruction. Taken individually these problem are troubling... combined they constitute an existential threat to humanity by precipitating an unsustainable future, a world as alien to us as the terrain of Mars.

Wherein current traditional design solutions seeks to address these issues via technological brute or economic sanctions/subsidies and political might, these approaches are not personalized, thus leaving society generally apathetic. Critical design aesthetics, on the other hand, can have a stronger impression on society, thus providing a more impactful, and potentially more effective means of addressing these current issues.

Wearable Ecosystems for Alien Environments (WEFAE) is a critical design expression and exploration of sustainability for such future alien world mentioned above. WEFAE fuses modular wearable technology, bio-art, insects, and physical computing to produce homeostatic systems that interact with both the wearer and the environment. The project seeks to call attention to symbiotic relationships, sustainability and the potential integration of technology, ecology, and humanity.

Design Question

How can critical design projects offer insights and solutions to existential threats that traditional design has been unable to solve.

Domains

Science Fiction

Critical Design

Bio Art

Environmental Sustainability

Wearable Technology

Artistic Reference - Symbiotic sustainability with the wearer

Burton Nitta
http://www.burtonnitta.co.uk/algaculture.html

Burton Nitta's 2010 piece *Algaculture* uses algae as an alternate way to fuel the body. Nitta's project posits "new symbiotic relationship between humans and algae. It proposes a future where humans will be enhanced with algae living inside new bodily organs, allowing us to be semi-photosynthetic". The notion of an homeostatic symbiotic system for WEFAE was inspired by this project
http://www.burtonnitta.co.uk/algaculture.html

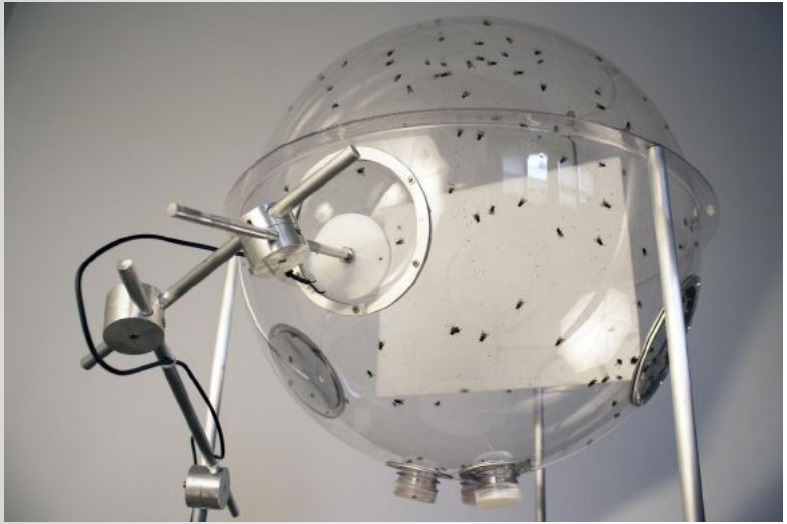
Artistic Reference - Interactivity and awareness of environment

Gilberto Esparza
http://vimeo.com/18853622

Another inspiration for WEFAE is Gilberto Esparza's Plantas nomadas. Esparza creates bio-robots that interact with their surrounding space and are aware of the impact they have on their environment. The bio-robots become a new species of fauna that "...lives near rivers that are being polluted by waste from the city, moves to find the water-and waste-processing to transform nutrients into energy, thus fulfilling their life cycles."

Artistic Reference - Integration of lifeforms

David Bowen
http://www.dwbowen.com/flyblimps.html



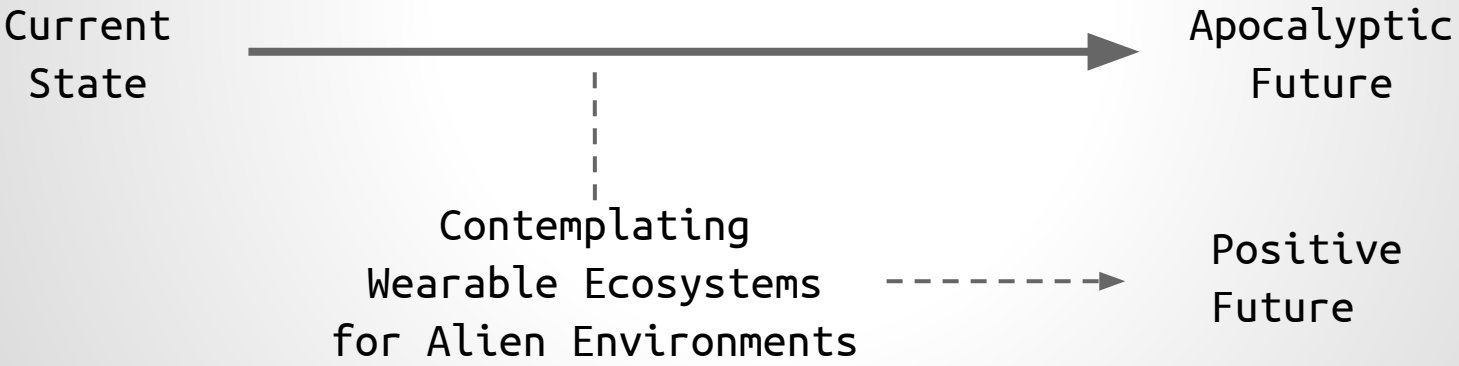
David Bowen's Fly Blimps relate directly with the use of lifeforms in WEFAE. Where Dowen utilizes house flies, WEFAE uses Drosophila flies and ants as elemental bits for computation. WEFAE differs from Bowen's work as it goes beyond computation based on movent as it tries to expit conditioning and/or genetic differentiation in the enclosed insect populous

Audience

Society

Environmentally conscious

Future people



Methodology

STAGE I

Research insects & Test Enclosures

Create sensors to monitor Test Enclosure environments

Induce change & conditioning in Test Enclosure

Create sustainable symbiotic system

STAGE II

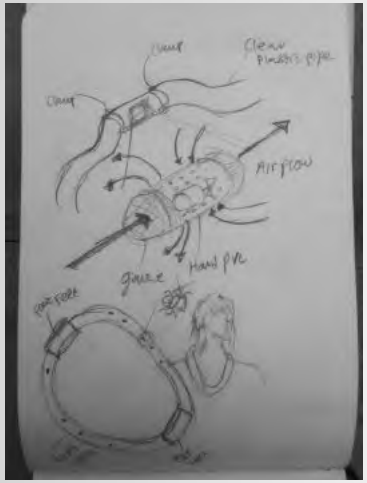
Develop & create & Test Enclosures

Develop and produce full helmet and body Units

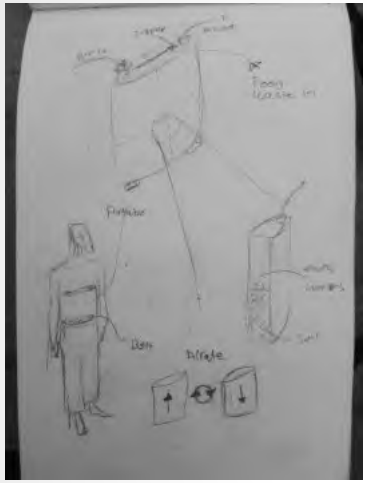
Develop and produce Surrogates

Integrate Units and Surrogates

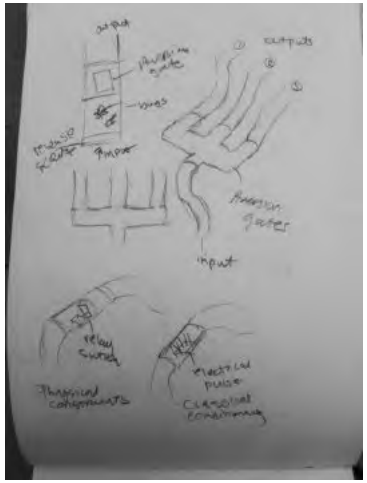
Sketches



Test Enclosures

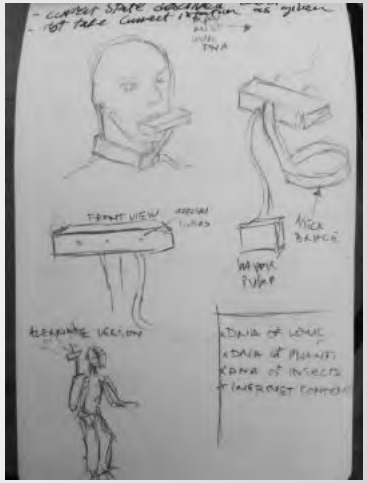


Compost Unit



Bio-Comp Engine

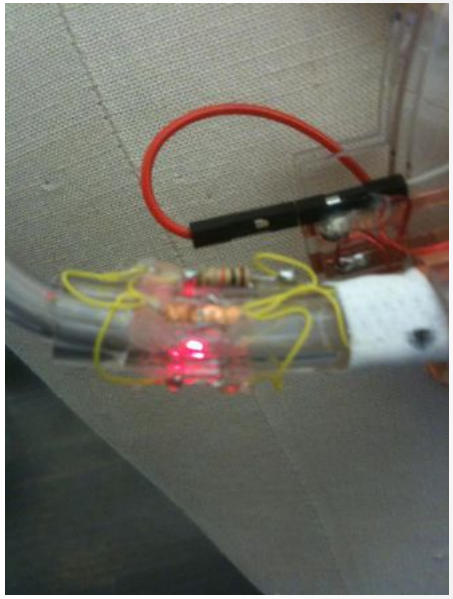
Helmet Unit feed - detail

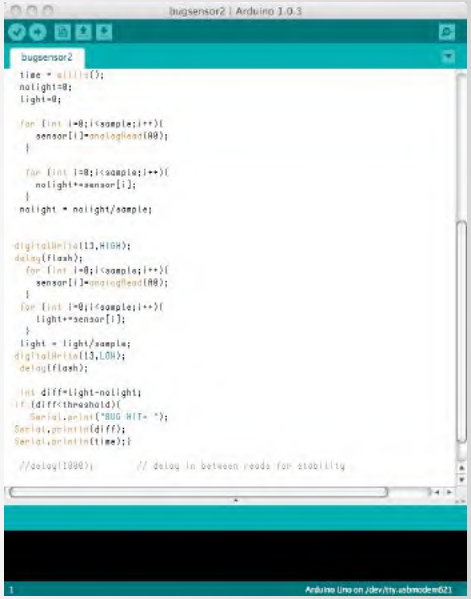


Helmet Unit breath - detail

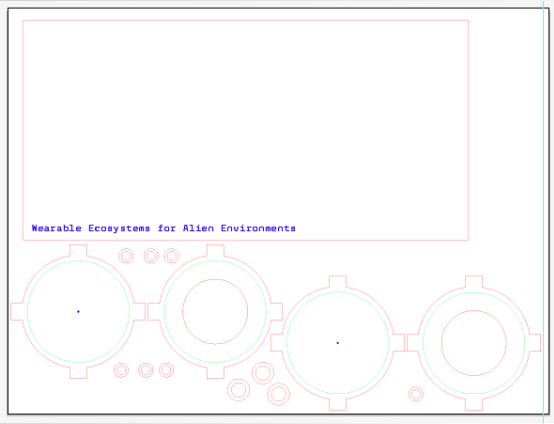
Prototypes - sensors

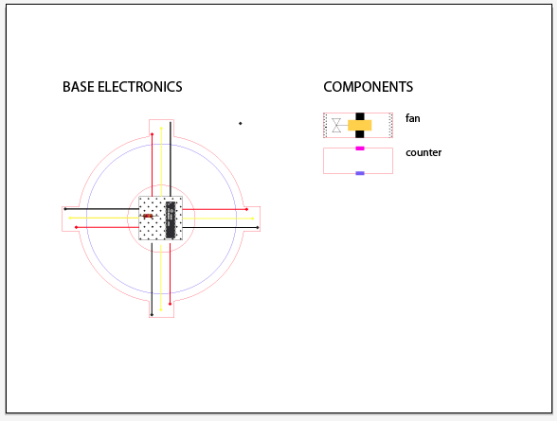
optical bug sensor / LED + LDR

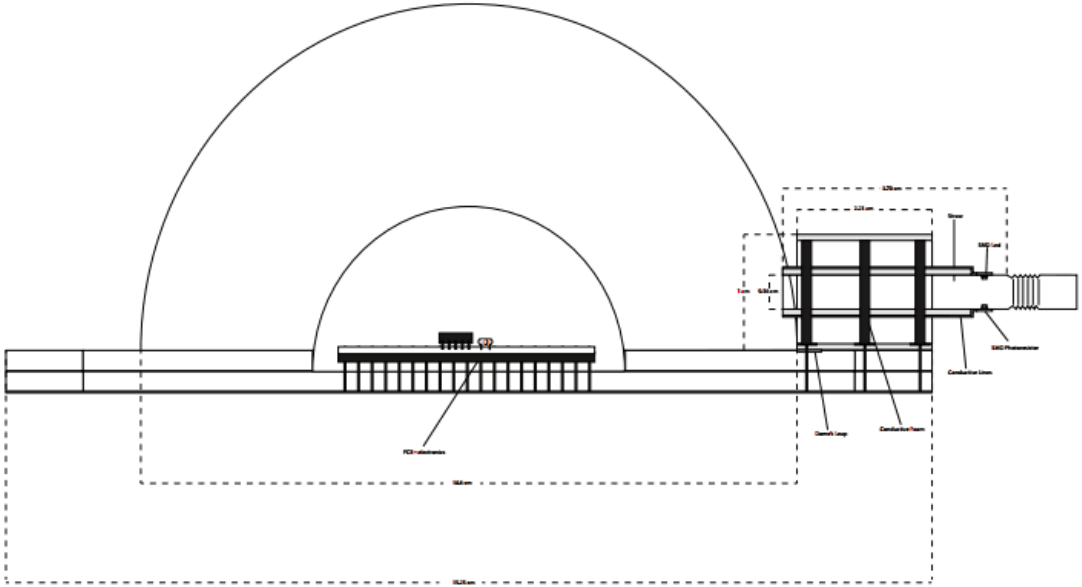




Schematics


Wearable Ecosystems for Alien Environments


BASE ELECTRONICS
COMPONENTS
fan
counter

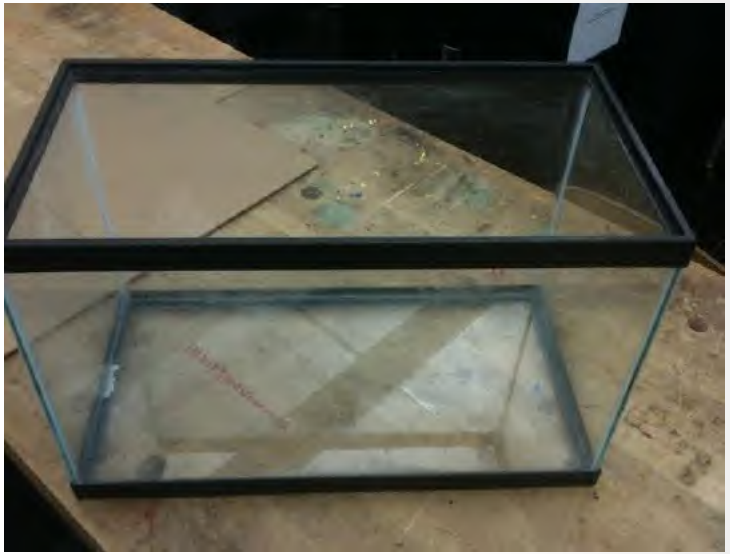


Laser-cutting

colony + doughnut + base

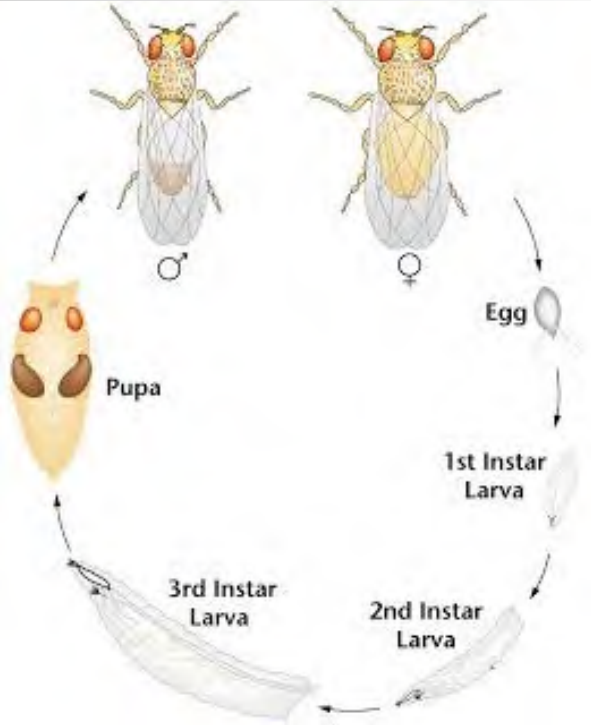
Prototypes - enclosure

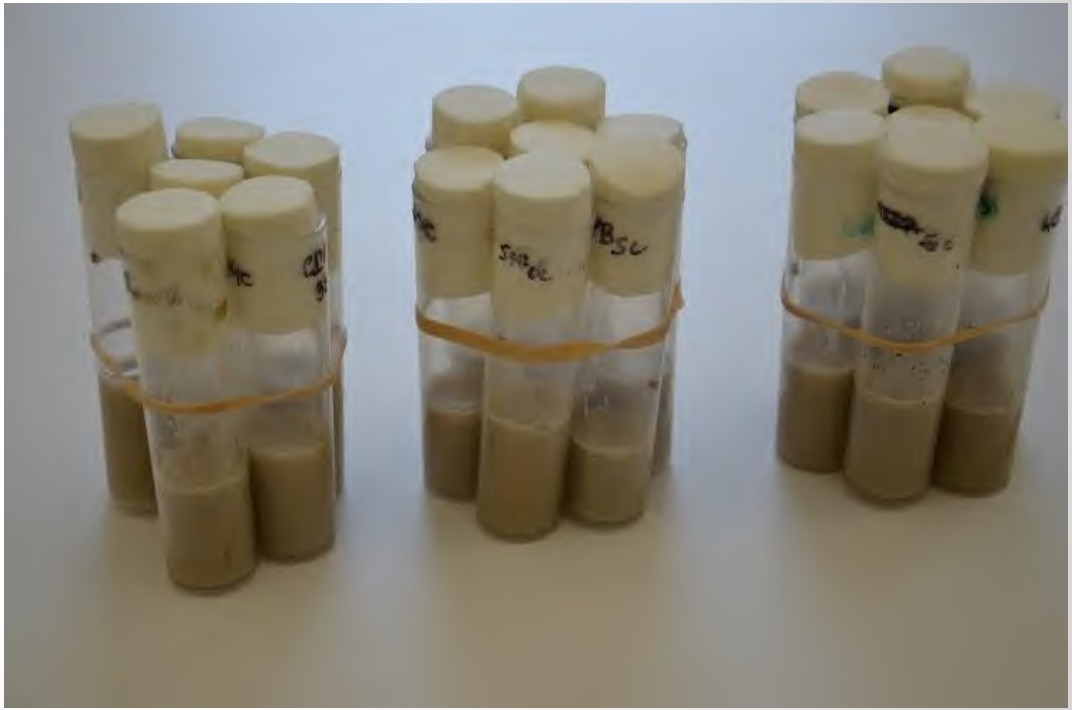
enclosure + colony



Drosophila

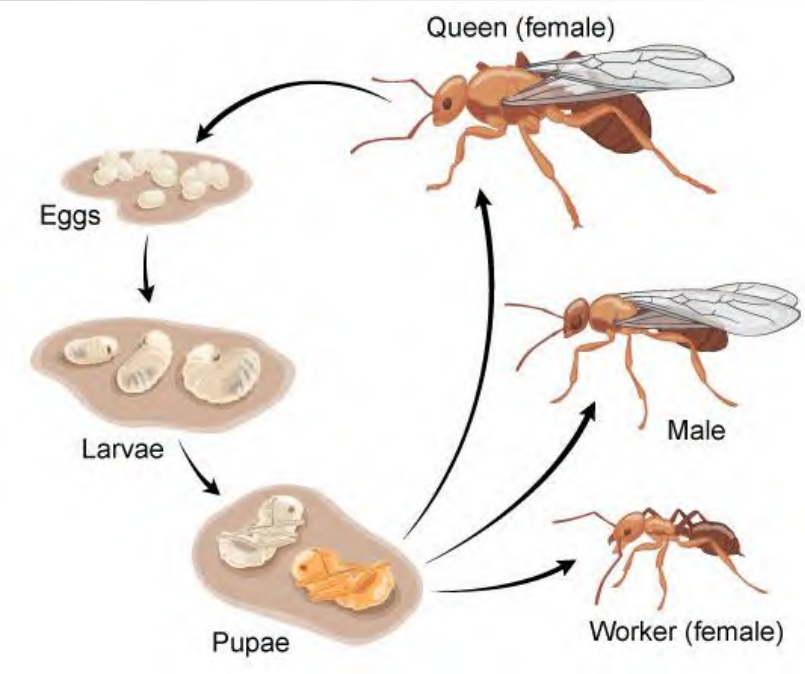
Drosophila fly life cycle





Harvester Ants

harvester ant life cycle



Ethics

Are insects conscious

What do they provide us

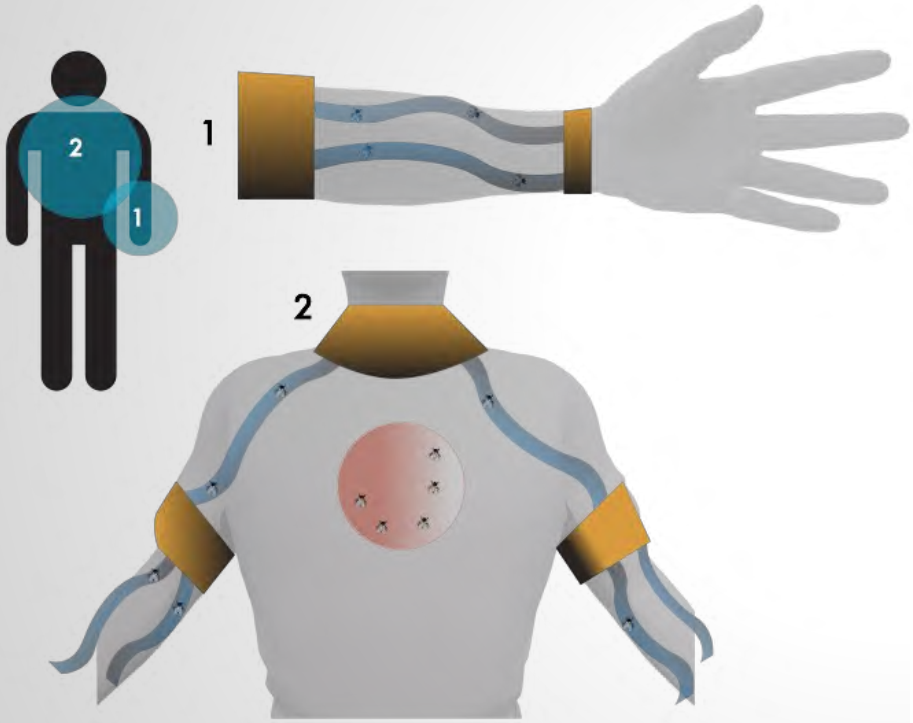
What do we provide for them

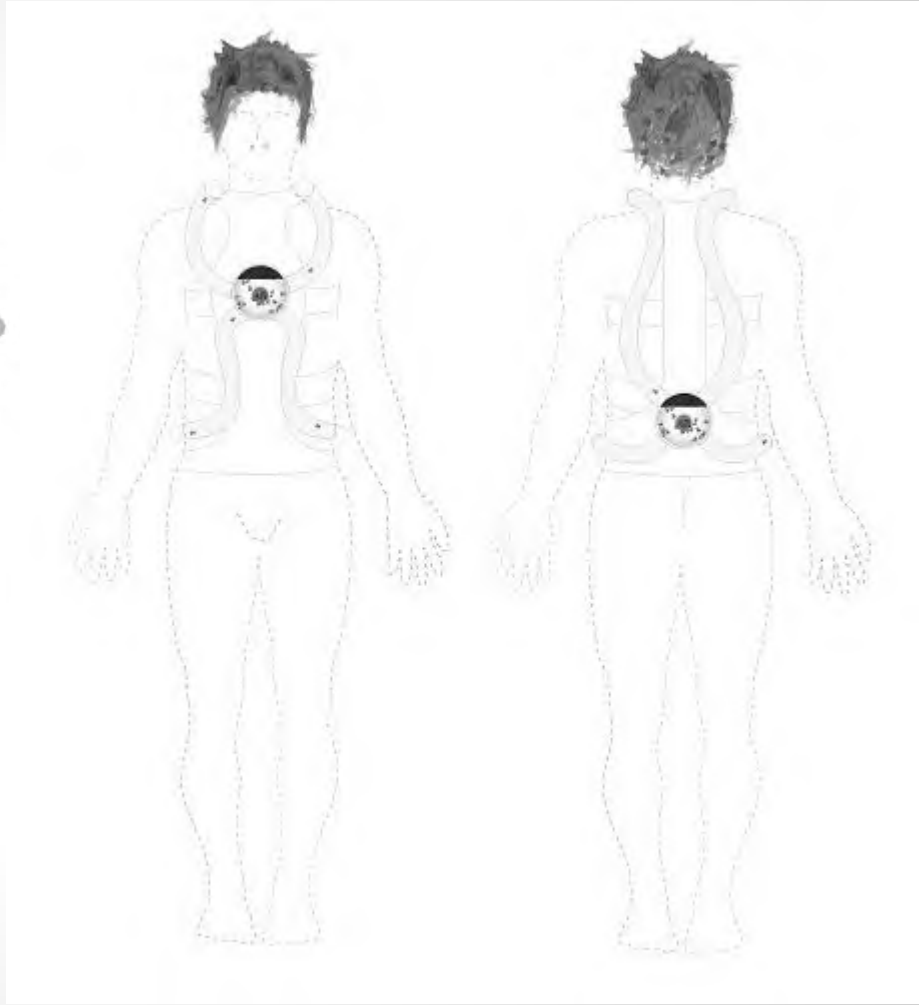
What is a natural environment

Issues on conditioning

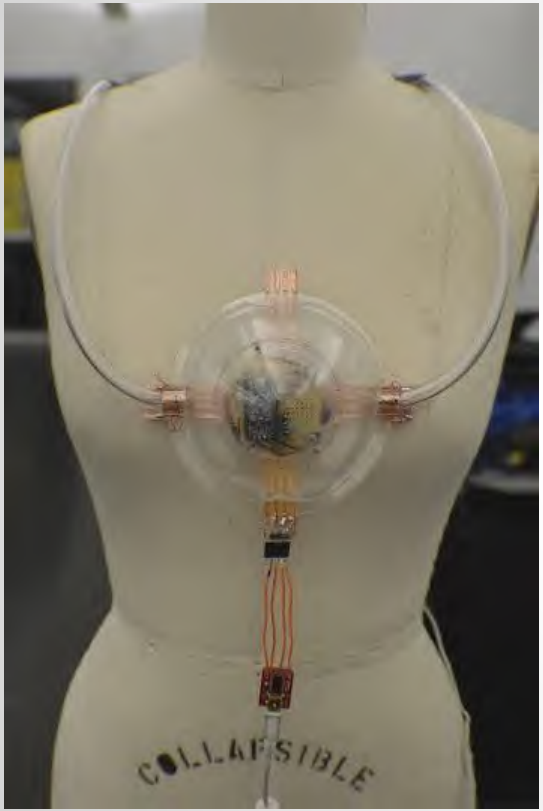
Where do we draw the line

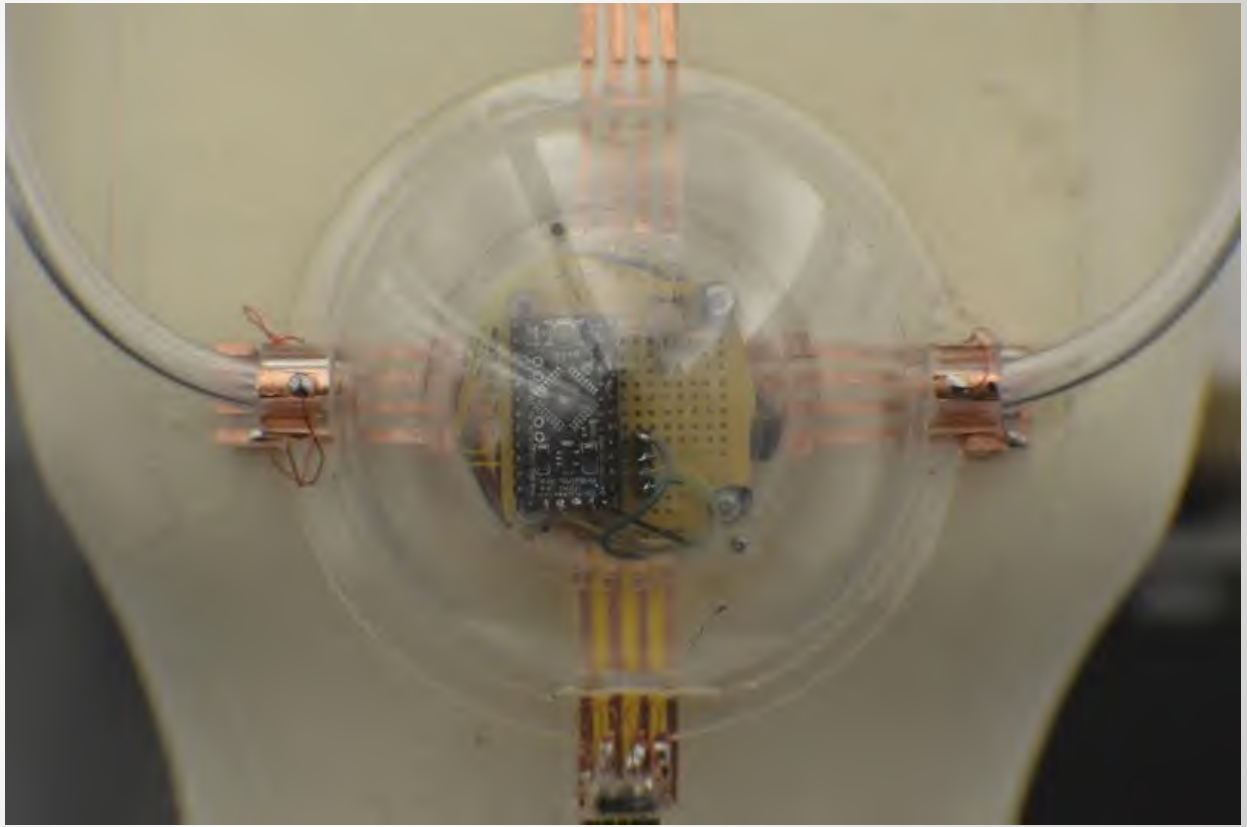
Body Unit & Enclosure



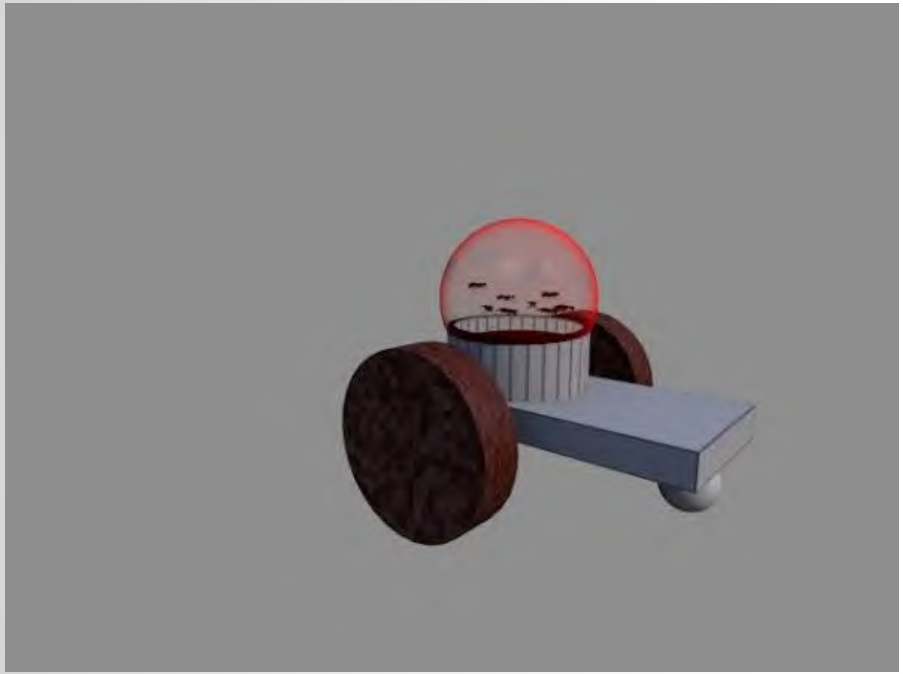


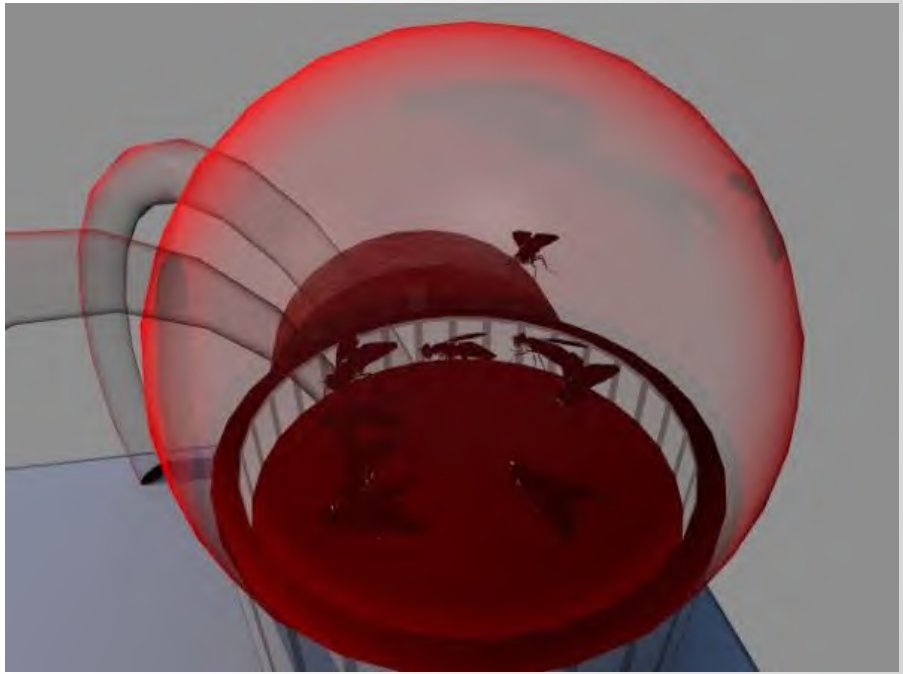
Body Unit & Enclosure



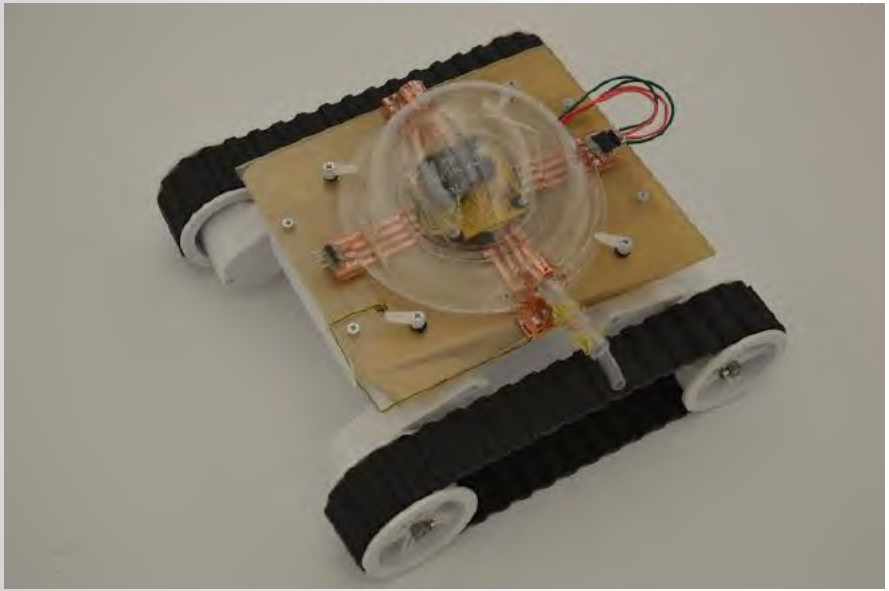


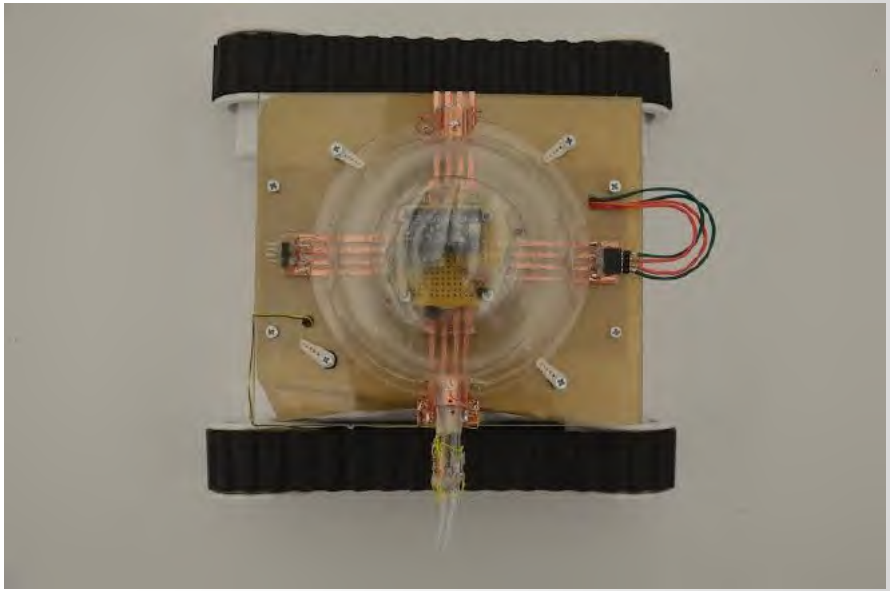
Surrogate & Enclosure



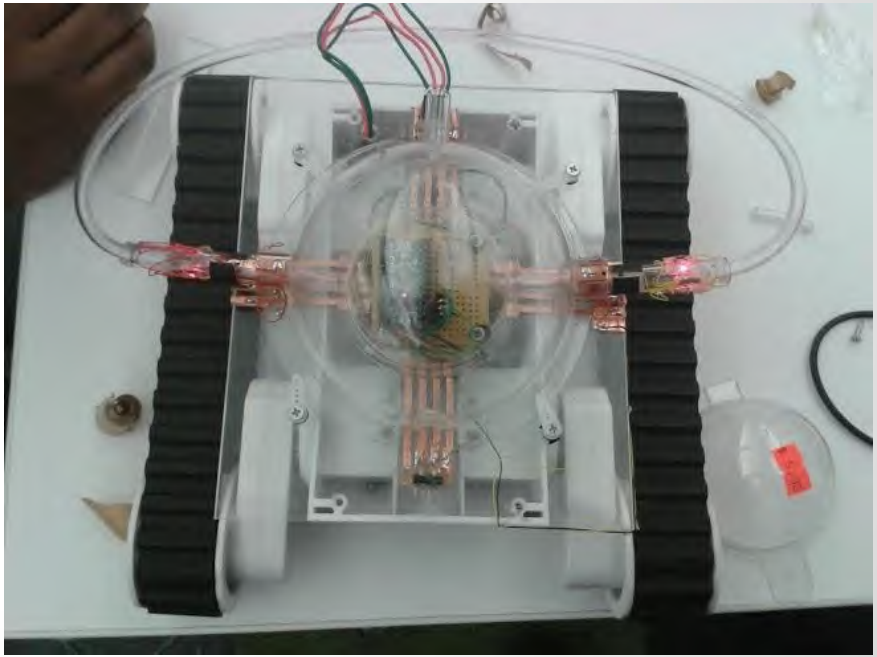


Surrogate & Enclosure





Surrogate & Wearable



Challenges

Bio sustainability

Material research

Symbiosis

Enclosure <> Unit <> Surrogate communications

Ethics

Thank you

…welcome to the singularity