

Build your own lab at the BioHack Academy

@UWA

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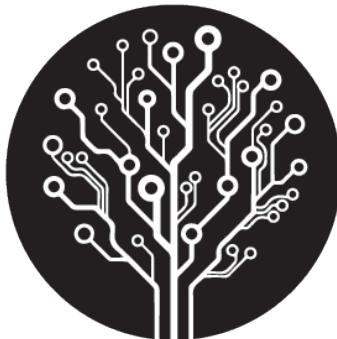


OSA[®]
Student Chapter
The University of Western Australia

MAKEUWA

BioHack Academy @ UWA

BioHack Academy [BHA] is an international hands-on bootcamp organised by the Waag Society in Amsterdam, Netherlands. UWA has partnered up with the Waag Society, among 6 other worldwide institutions to teach, connect and play in the world of *do-it-yourself* biology—DIYbio.



In just over 2 months at UWA, we've built our own Bio Labs together. Every week we've tuned-in to 2-hr live-streamed and interactive lectures. The lectures gave insight into engineering, biology, art, design and ethics of DIYbio. The lectures were followed by practicals, putting theory into practice. Each week we've built an open-source device, like a magnetic stirrer. Participants chose either to replicate the existing designs, to improve them or even build their own devices from scratch.

Course notes

biohackwa.github.io

DIYbio in Perth

[f /groups/diybioperth/](https://www.facebook.com/groups/diybioperth/)

In possession of their own Bio Labs, participants continue to advance their production skills, project designs and programming, and engage in directed evolution experiments, produce bio gas, purify water, bioremediate polluted soil. The limits are few!

"The age of personal biotechnology is upon us! Biology has become a medium for design and creativity, and it is now up to us to shape its applications."



waag society

-- Waag Society

Waag Society is the institute for art, science and technology. Waag Society develops creative technology for social innovation and cooperates with cultural, public and private partners.

The Maker culture has been rapidly growing over the past decades, both inside and outside universities, with the advent of cheap tools, such as: lasercutting, 3D printing, microelectronics, as well as an ever-growing community built upon openness, sharing and collaboration.

Biology is experiencing a similar ‘revolution’, which is fueled by cheaper fabrication and simpler automation, as well as a greatly accelerating pace of genomic and

system biology research.

Now is the time to learn, make and exchange ideas to become ready to enter the new age where genetic modification and personalised medicine are becoming commonplace. As individuals, to form our own intellectual opinions, to become actors and not observers. Creativity and self-driven learning culture is critical to sparking innovation.

DIYbio, as a collective, has the skills, time and dedication

to develop great ideas. It is the funding, mentorship of academics, and the interaction between disciplines that is hard to come by if both sides are not actively looking. BHA has been a great show of what can happen if you put artists, engineers, academics, biologists and designers in one room. The results were beyond my expectations—artists and biologists programming robots and engineers culturing cells and exploring bioethics.

-- Philip Wijesinghe, Coordinator BioHack Academy @ UWA

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Special thanks to Pieter van Boheemen, Global Coordinator BHA, Waag Society, The Alumni Fund, and all the others that have helped to make BHA excellent | acknowledged on page 9

The Challenge:

Build, use, hack and share this

1. Incubator



5. Centrifuge



2. Microscope



6. Magnetic Stirrer



3. 3D & 2D design



7. Spectroscope



4. Sterile Hood



8. Pumps



9. Bioreactor controller



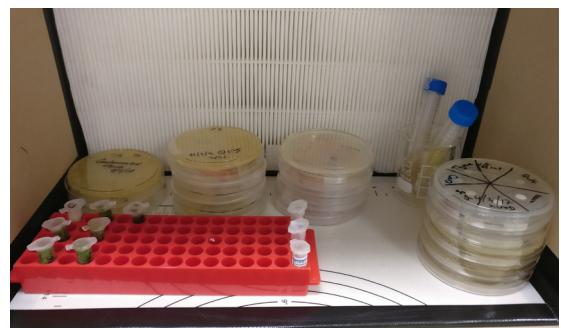
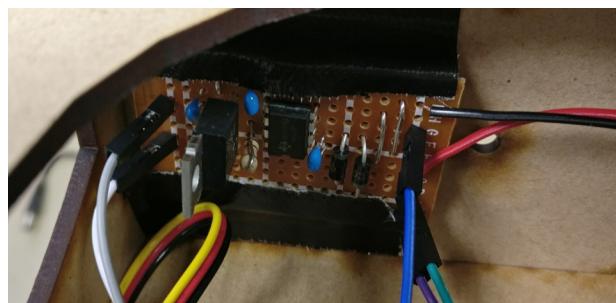
Open Devices

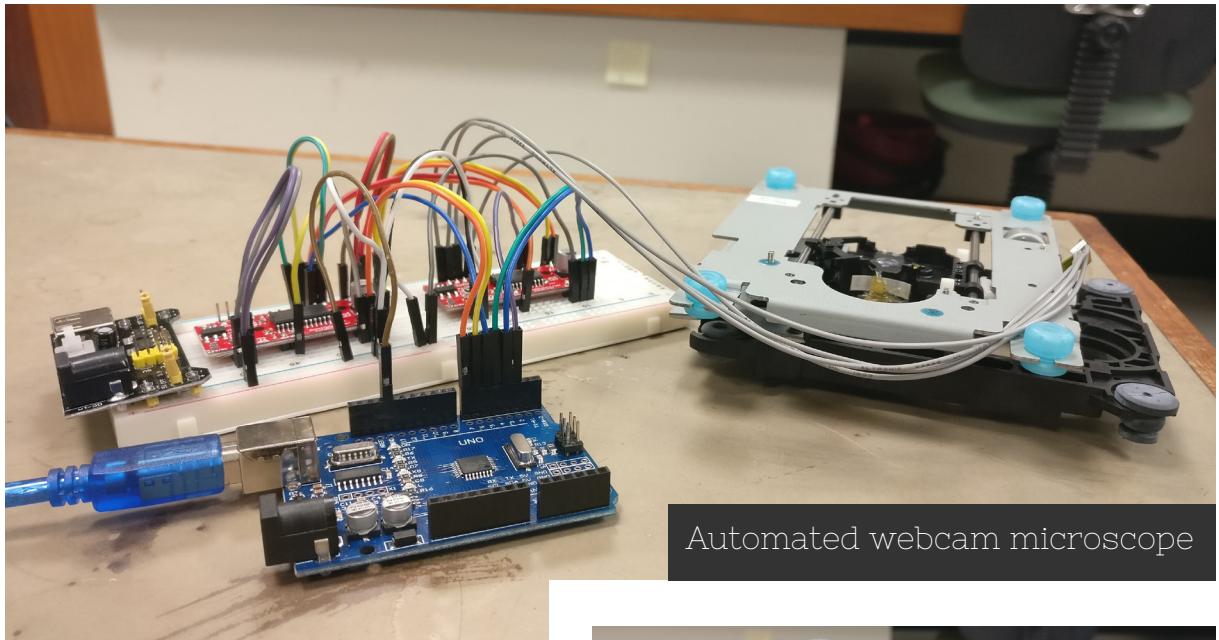
Incubator

Webcam Microscope

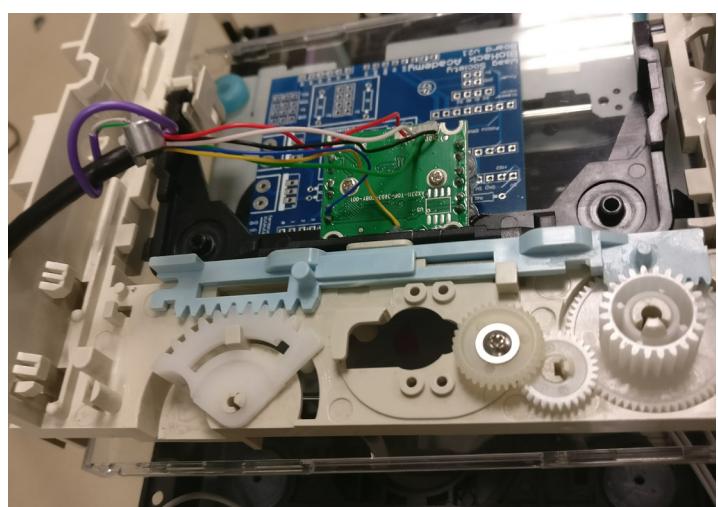
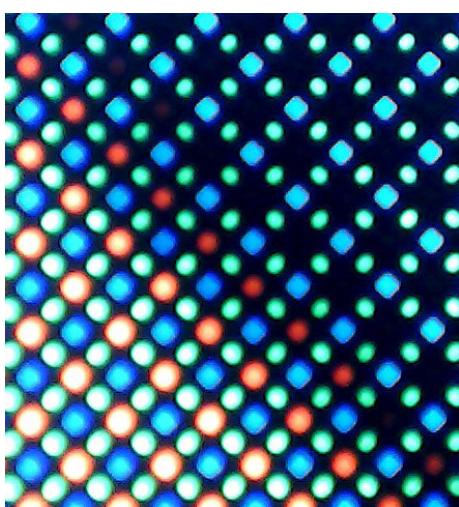
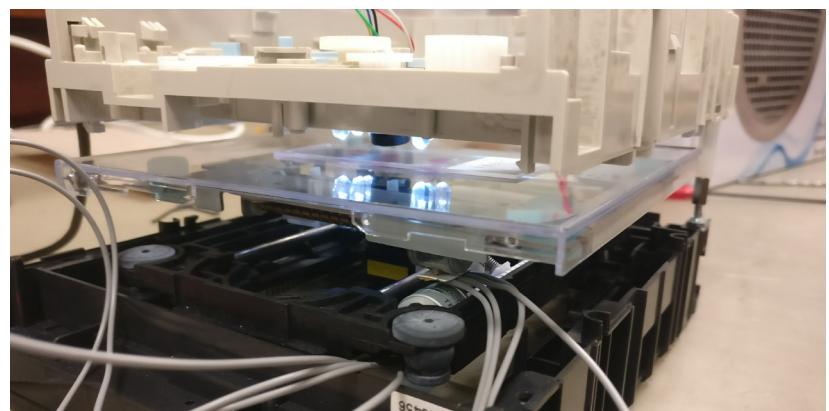
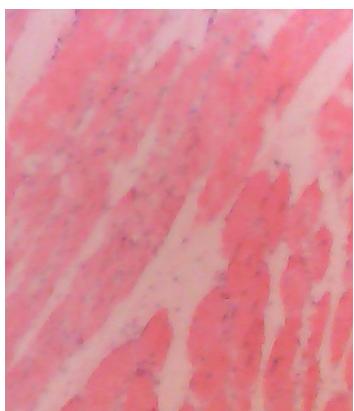
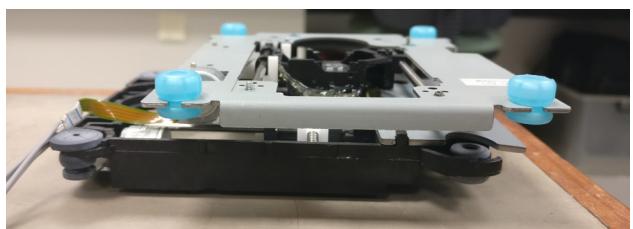
Magnetic Stirrer

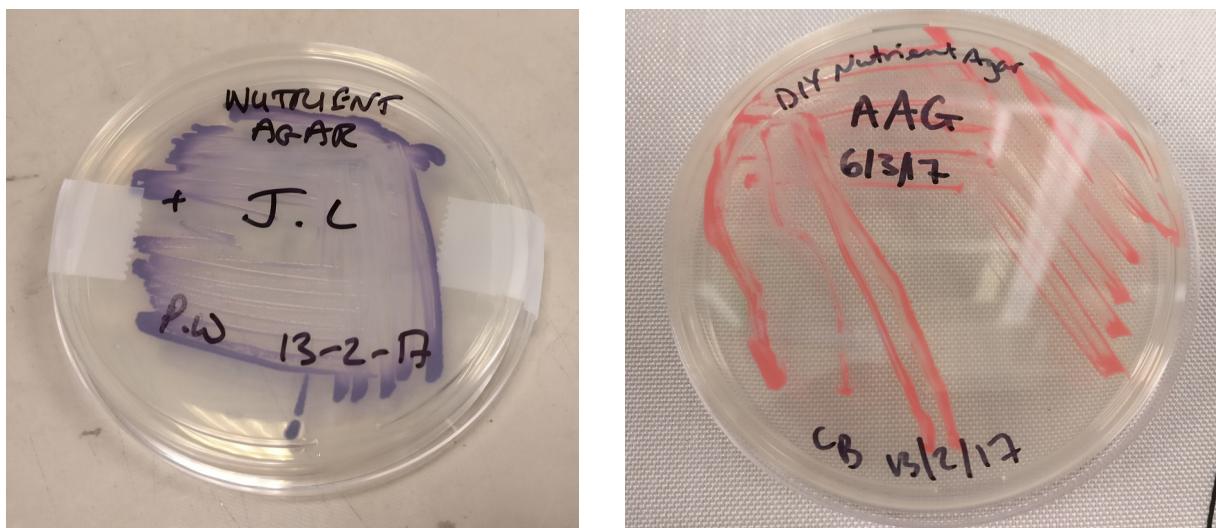
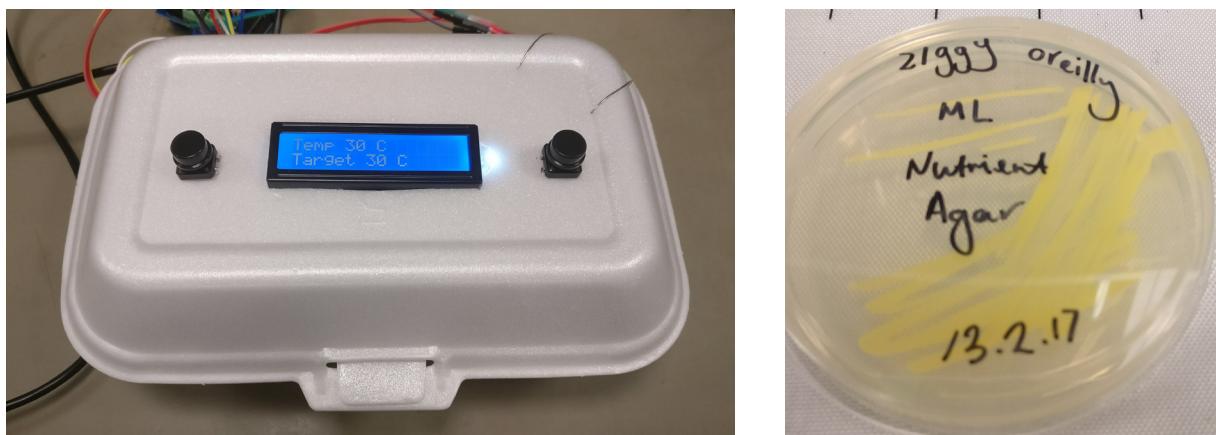
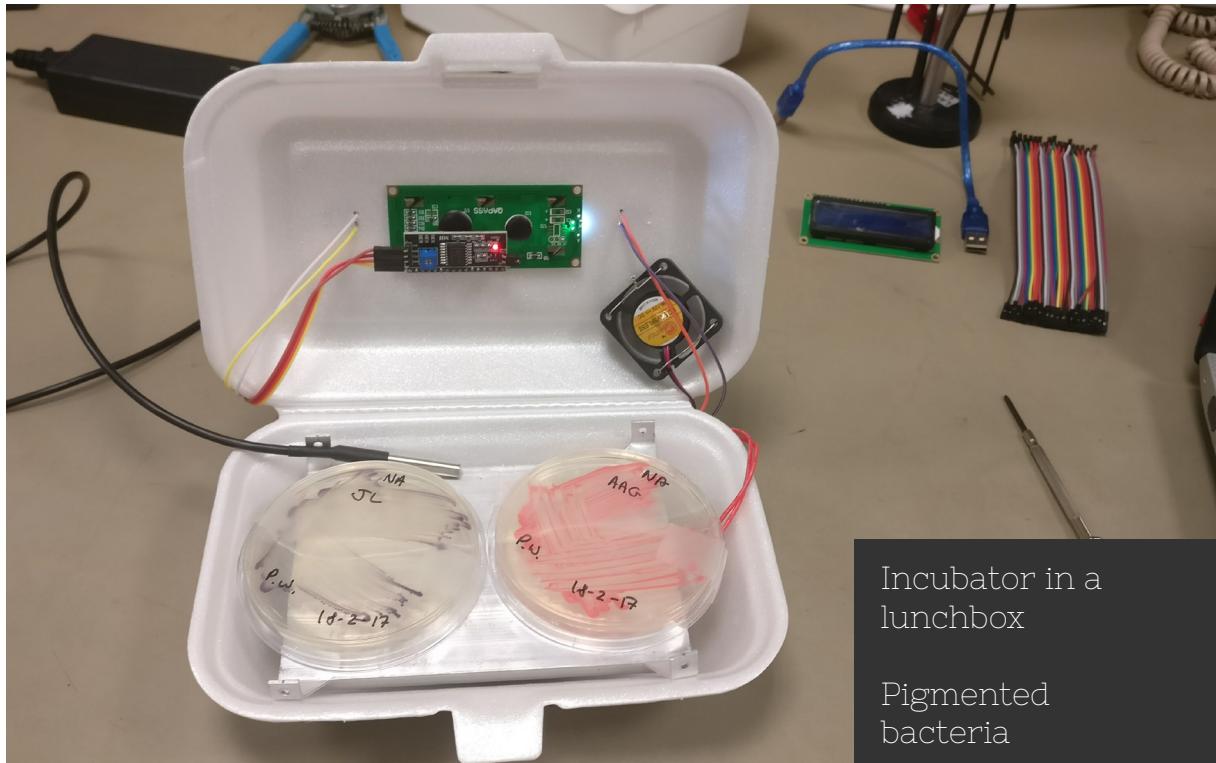
Flowhood

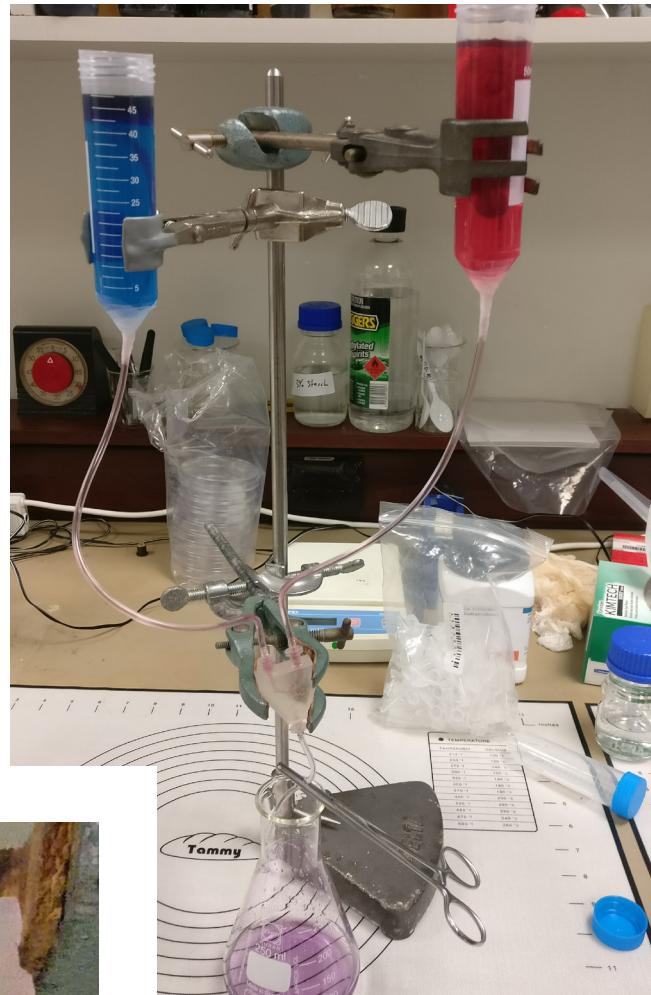




Automated webcam microscope

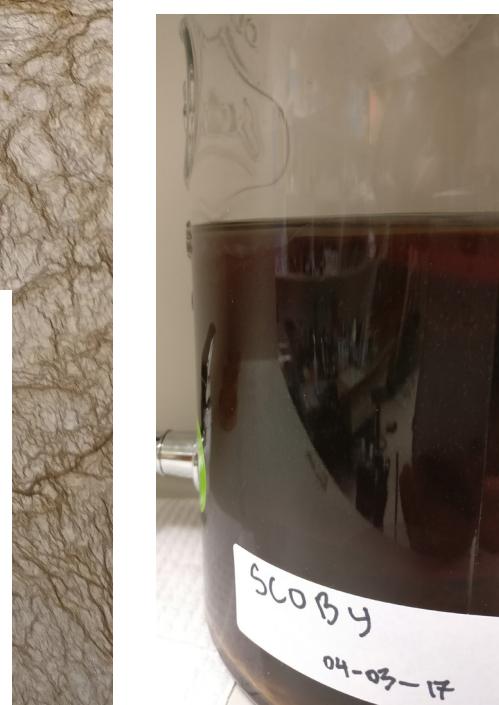
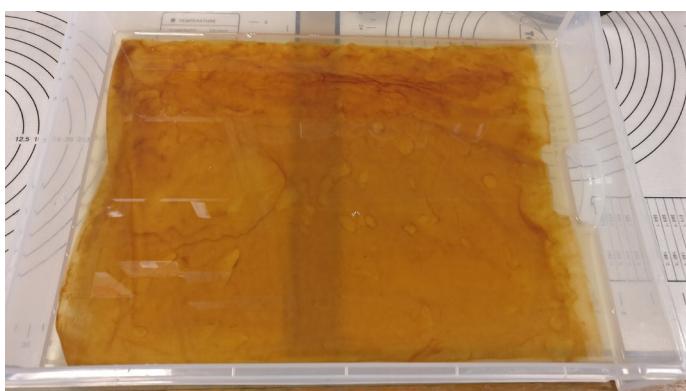


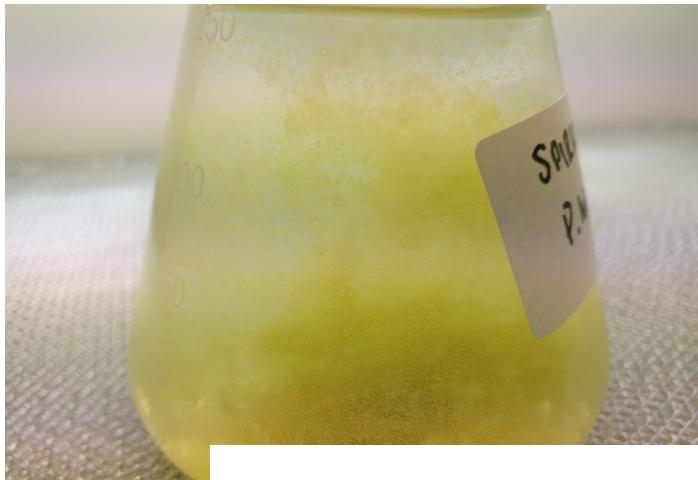




3D printed microfluidics

Cellulose textiles from
SCOBY culture





Algae
Slime
mould
Antibiotic
resistance



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M-Lab - Lithuania
BioClub Tokyo - Japan
National Museum of Modern and Contemporary Art - South Korea
Shenzhen Open Innovation Lab - China
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-- from all of us at UWA

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DIYbio in Perth [/groups/diybioperth/](https://www.facebook.com/groups/diybioperth/)

