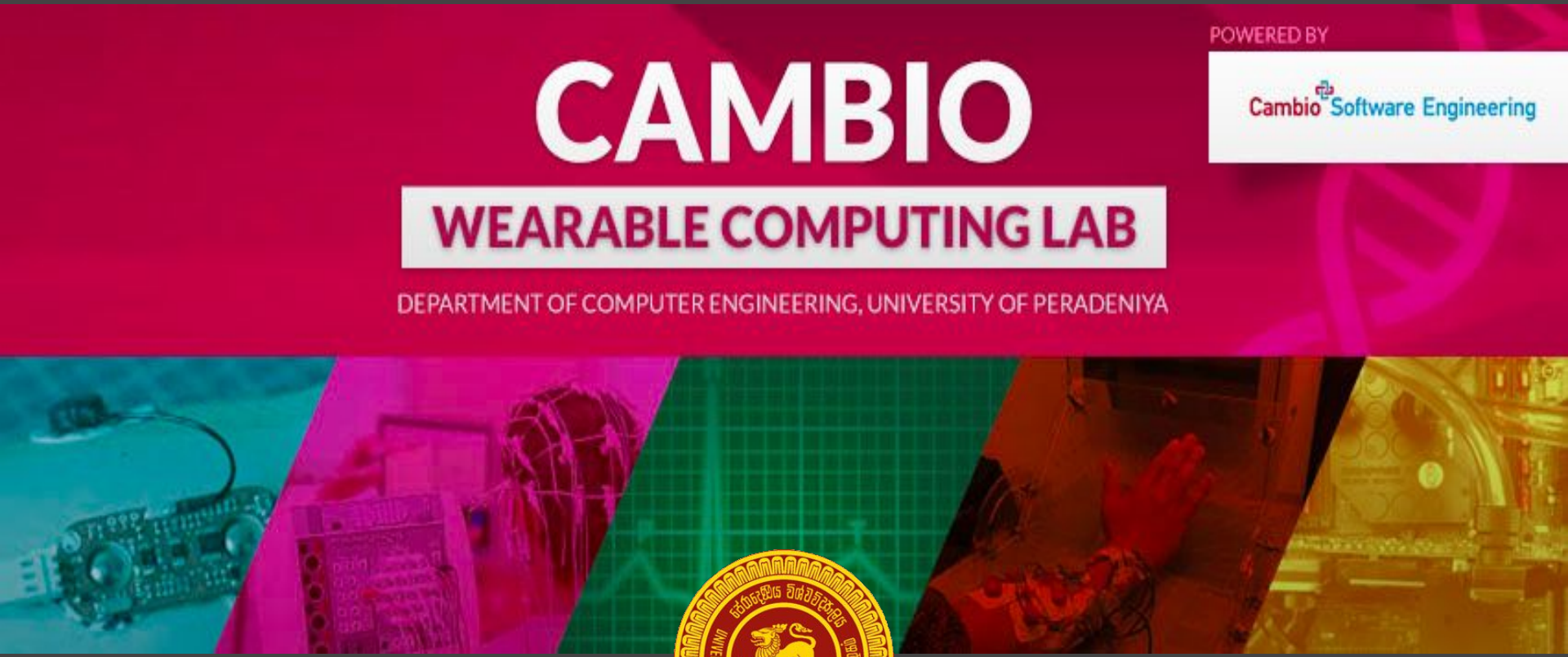
Introducing...



Prepared by Titus Nanda Kumara

What is it

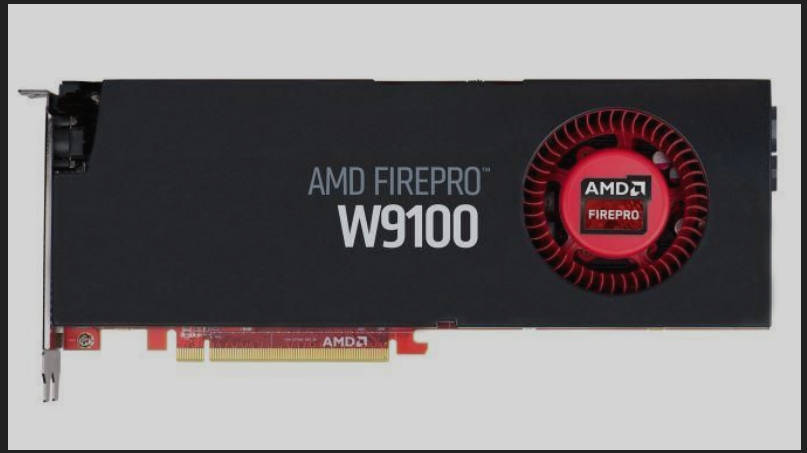
- A fully equipped research lab donated by “Cambio Software Engineering, Sri Lanka”
- As the first phase, the main focus is biomedical applications
- Probably the only lab of this kind in Sri Lankan Universities

Idea of this presentation

- To give you a brief idea about the “Cambio wearable computing lab”
- Showcase the components we have in the lab
- Motivate you to work on some projects related to biomedical applications
- Probably win some hackathons in this domain
- Make you interested in doing a project in biomedical application domain as your final year research project

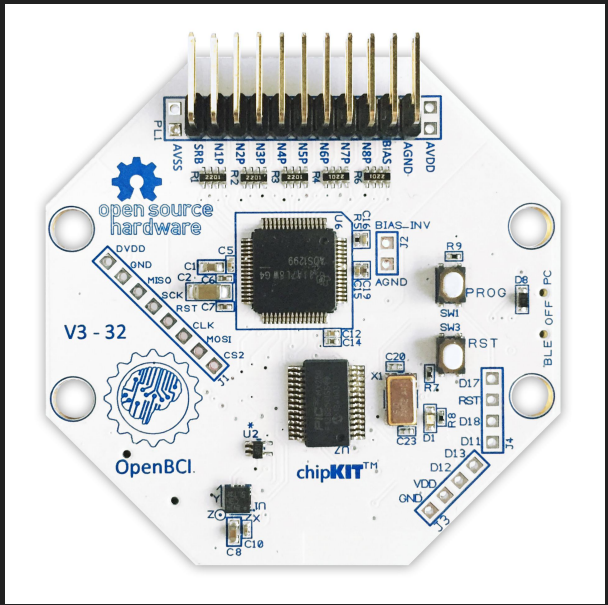
1. AMD FirePro W9100

- 32GB Memory
- 2,816 stream processors
- 5.24 TFLOPS peak single precision performance
- Supports OpenCL

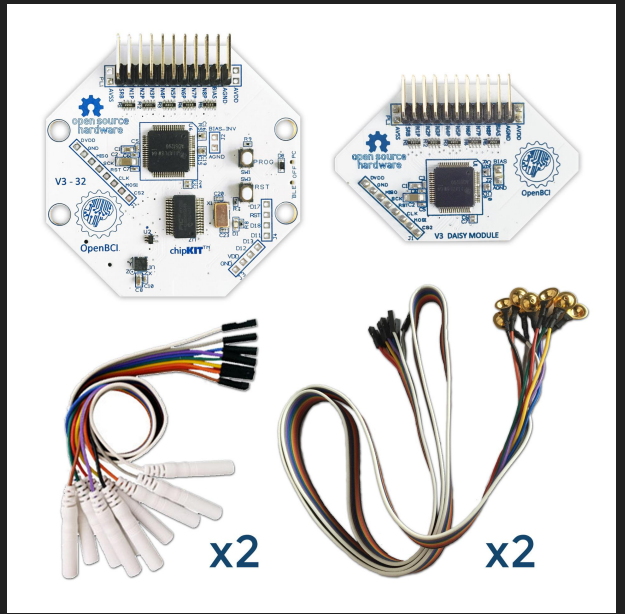


2. OpenBCI boards

- Cyton Biosensing Board Kit (8-channel) x 1

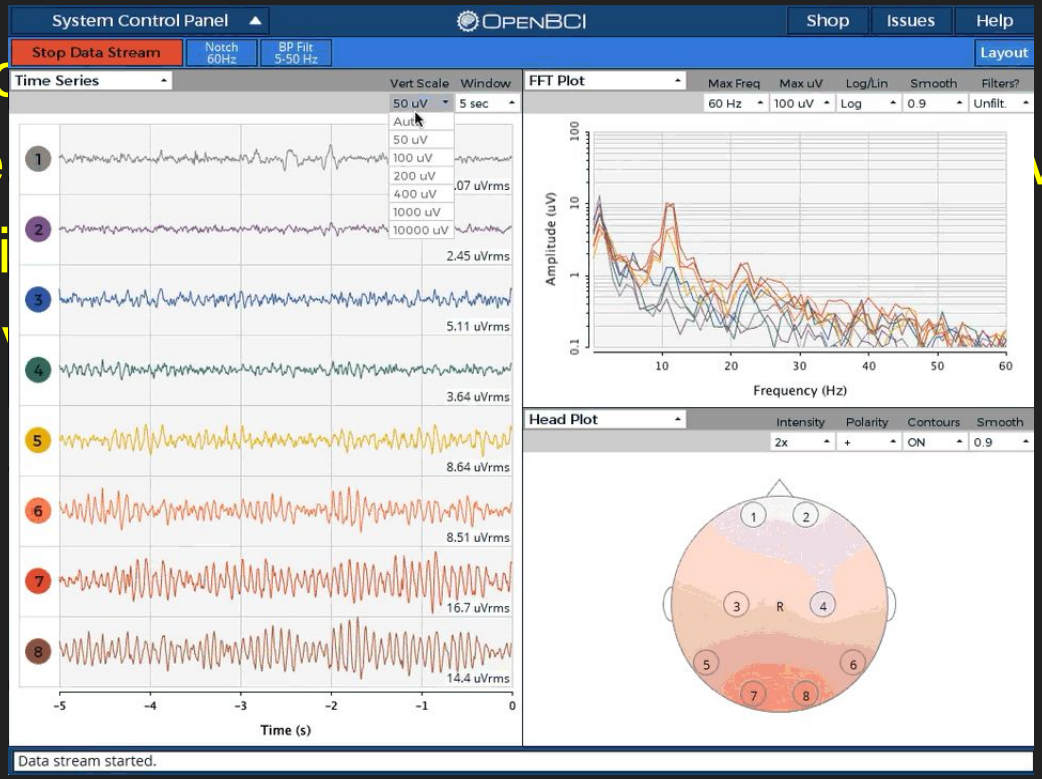


- R&D Kit (16-channel) — Cyton, Daisy, & Accessories x2



2. OpenBCI boards

- 8/16 bi
- Can be MG), Heart (ECG) i
- And ob



2. OpenBCI boards

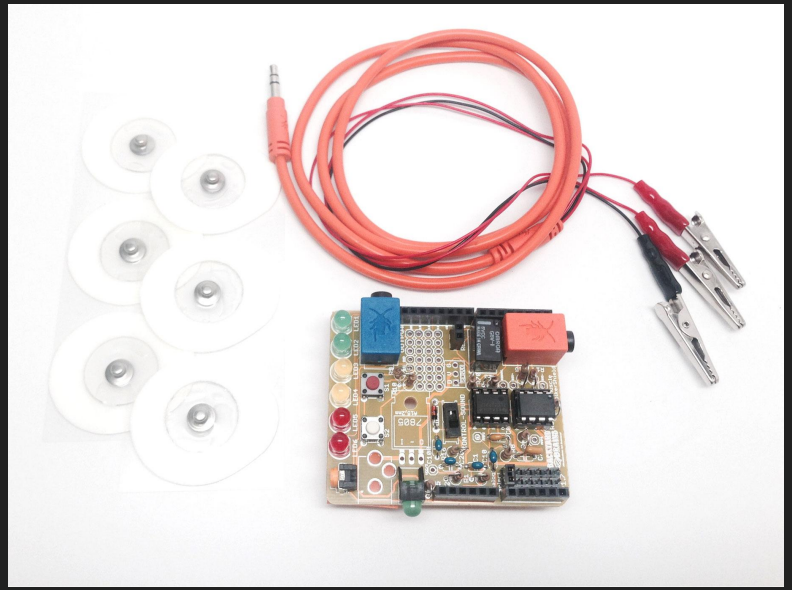
- BCI applications
  - Medical
  - Smart Environment
  - Neuromarketing and advertisement
  - Educational and self-regulation
  - Games and entertainment

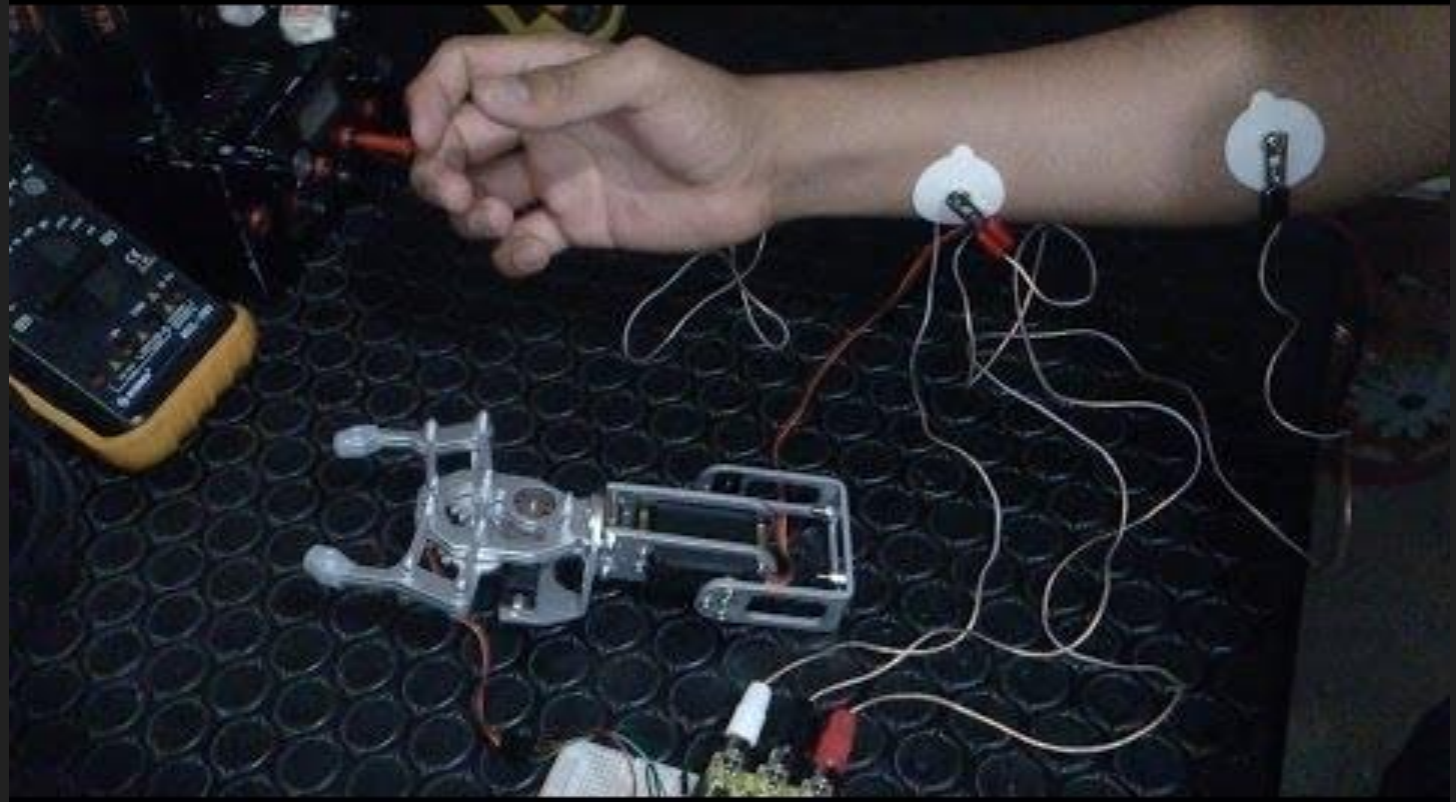
http://www.sciencedirect.com/science/article/pii/S1110866515000237


MEDIA LAB

3. Muscle Spikerbox and Spikershield

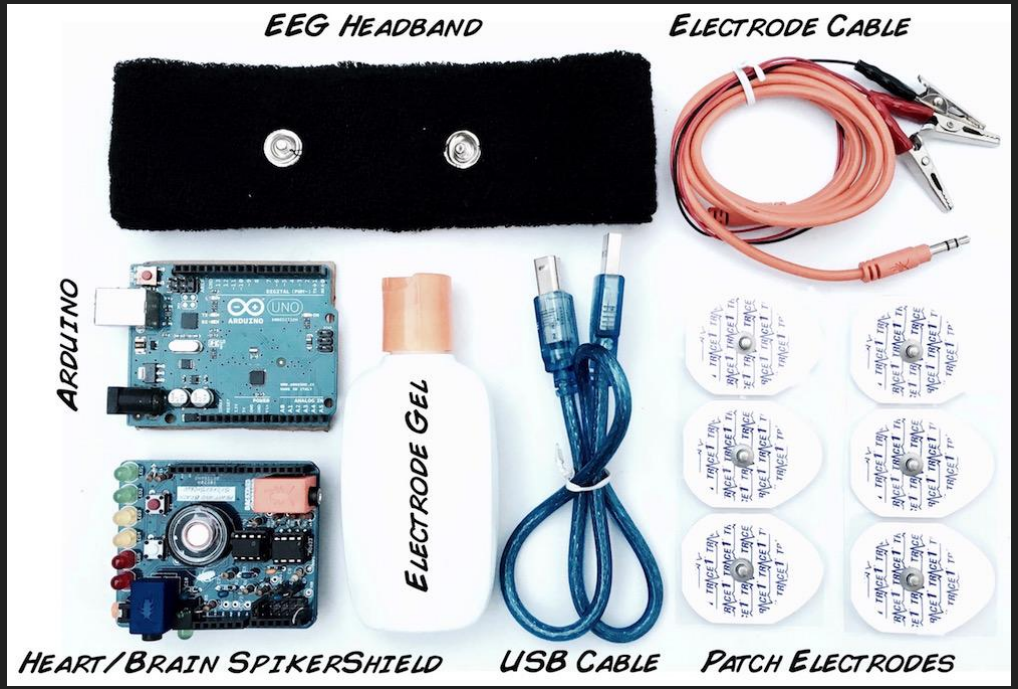
- Can be used to capture the EMG signals from muscles





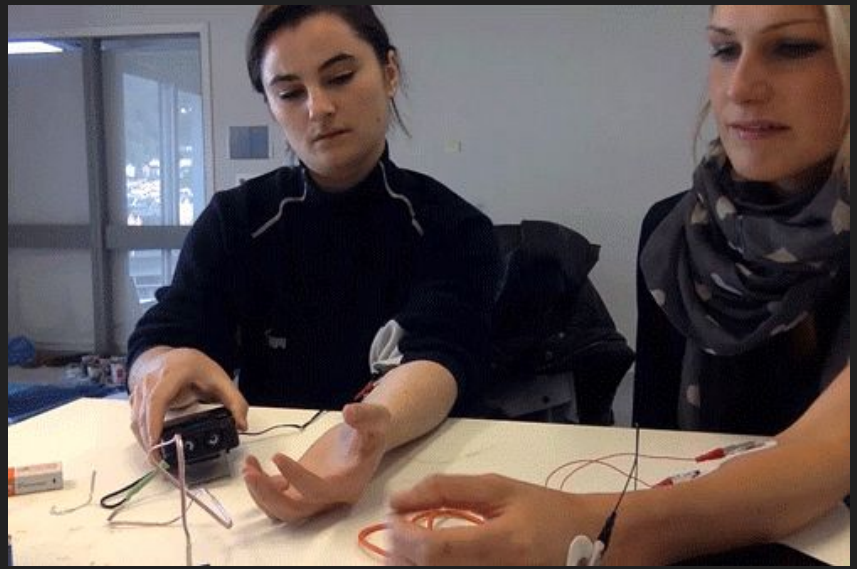
4. Heart and Brain Spikershield bundle

- Can record Brain (EEG), Heart (ECG) and eye movements



5. Human - Human Interface

- You can take the free will of another person
- Maybe you can think of some applications out of this



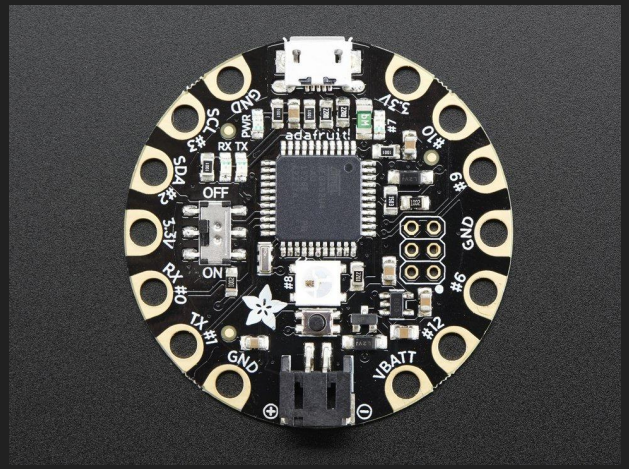
6. Lynxmotion AL5D robot arm x3

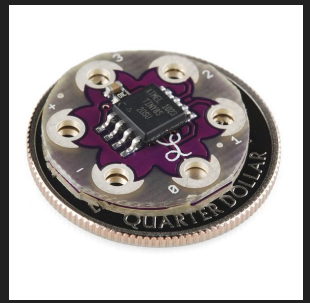
- Robot arm with 4 DOF
- Has SSC-32U controller which can control 32 servo motors simultaneously
- Need people who are really interested in mathematics and programming to control the robot
- Can be controlled with EEG, EMG input (if you know how to program)
- Need people to assemble the arm

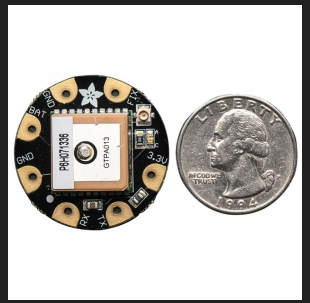
6. Lynxmotion AL5D robot arm x 3

Wearable modules

- Flora Microcontrollers
- LilyPad LilyTiny
- Wearable GPS modules
- Conductive Thread
- Conductive Paint







Next step

- Come up with some cool ideas to use these components
- Try them when you have some free time
- Maybe you can present your projects in some hackathons
- If you have learned about something, **pass the knowledge to your juniors**
- Tell everyone that we have this lab
- Get involved in the lab’s Facebook Page

Thank you