



STEM Education across the APRU Network: **Create Inclusive Learning Environments for Students**

The Hong Kong University of Science and Technology

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In an embedded system course:

Peer-discussion on project proposal



Inspiring
stories



In-class Q&A

Q1. You are asked to complete the circuit for measuring the timing length of events.
Firstly, a timer has two different modes: Timer Mode and Counter Mode. Which of the following setting is correct?

- ☐ 1. Timer 1: Timer Mode Timer 2: Timer Mode
- ☒ 2. Timer 1: Timer Mode Timer 2: Counter Mode
- ☐ 3. Timer 1: Counter Mode Timer 2: Timer Mode
- ☐ 4. Timer 1: Counter Mode Timer 2: Counter Mode

Q2. Follow the previous question, the TI1_ED of Timer 2 is connected to

- ☐ 1. Counter Register of Timer 1
- ☒ 2. ITRO of Timer 1
- ☐ 3. Counter Register of Timer 2
- ☐ 4. ITRO of Timer 2

Laboratory experiments

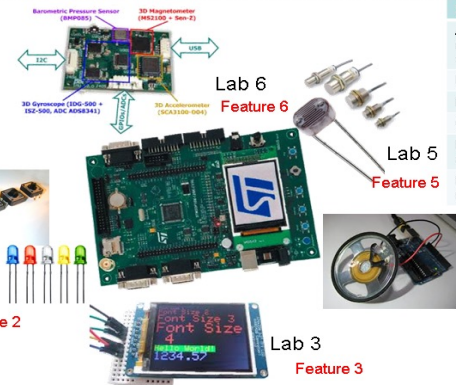
- After completing the laboratory experiments, you are able to integrate



Lab 1
Feature 1



Lab 2
Feature 2



Lab 6
Feature 6

Lab 5
Feature 5

Lab 3
Feature 3

STEAM Tutor Team

Before COVID-19

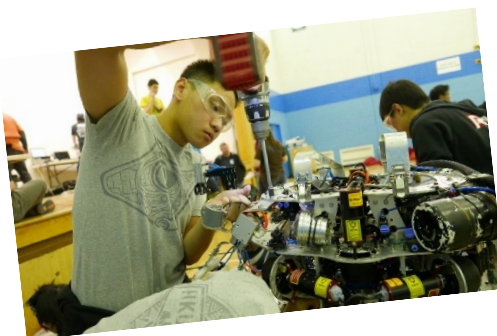
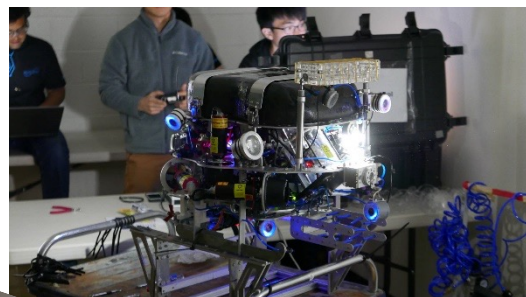


During COVID-19
Online (STEM@home video)





HKUST Robotics Team



A family of ...

Creativity

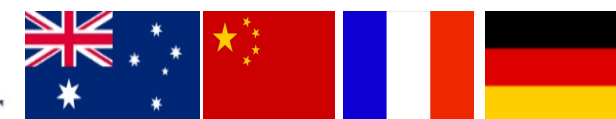
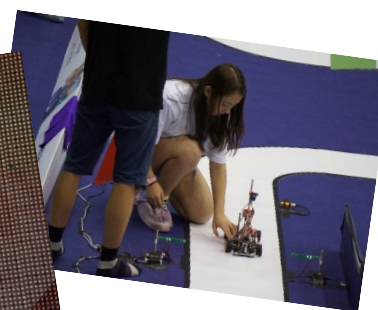
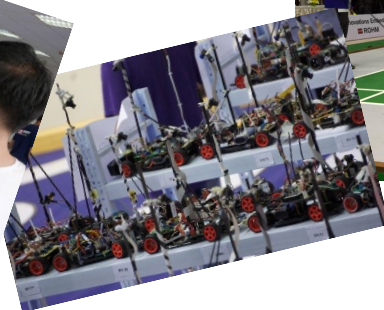
Knowledge

Hands-on experience

Problem Solving Skills

Teamwork

Research



Ripples go beyond the competitions



Robotics Competitions



Presentation competitions

- Technical
- Business
- Entrepreneur



Capstone Design Projects

- Final Year Projects
- Hobbies / Makers
- Research projects



30 students provide 5200+ volunteering service hours

Teaching and learning

- Junior Mentoring scheme
- Robotics x Community

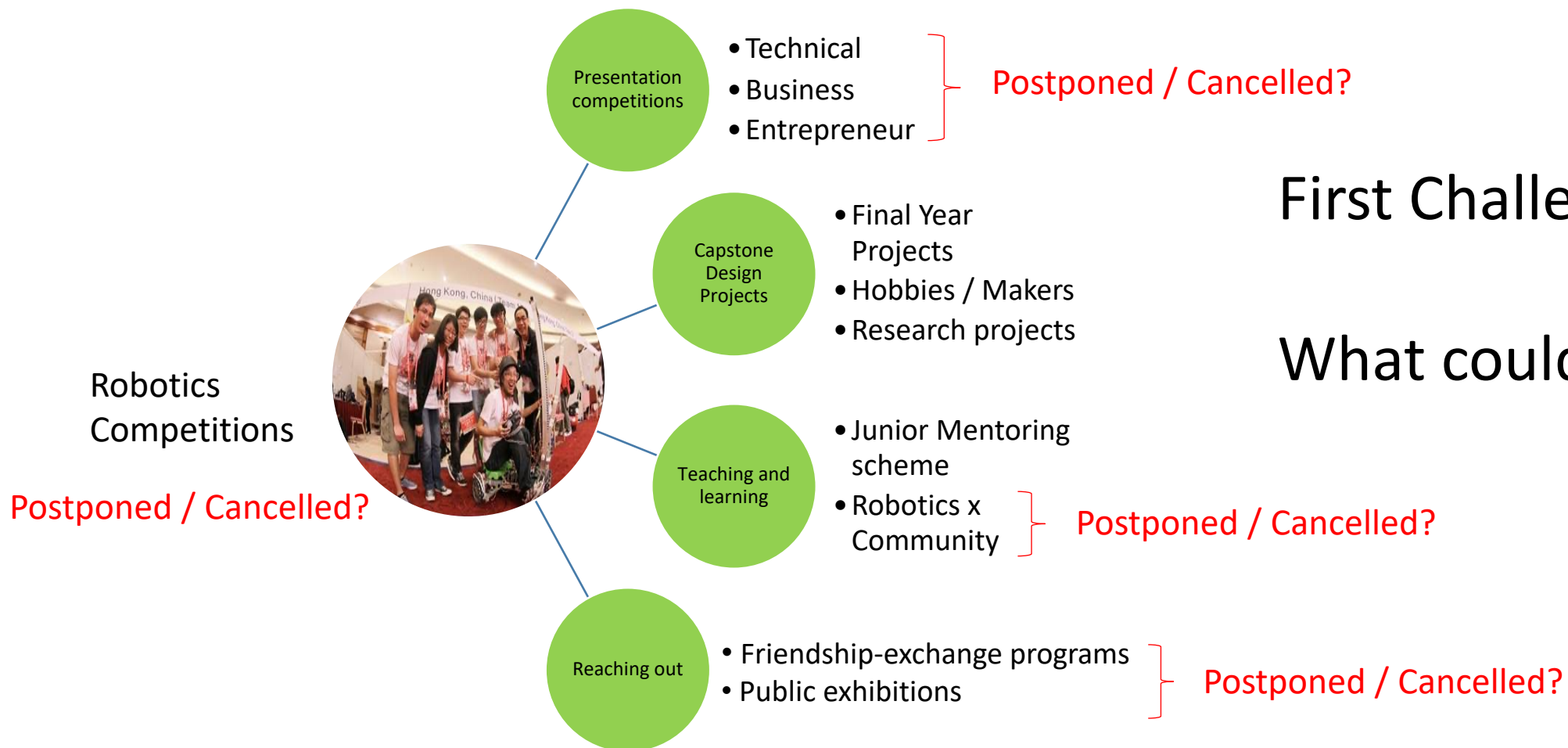


Reaching out

- Friendship-exchange programs
- Public exhibitions



In Feb 2020, everything online, social distancing...



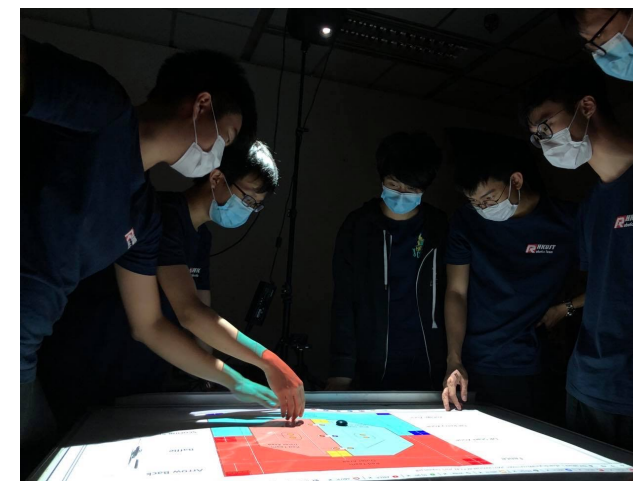
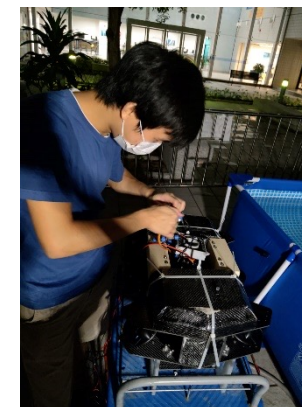
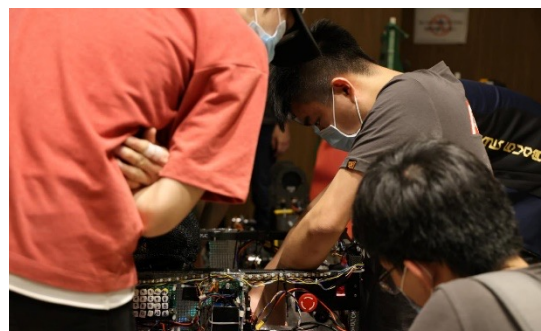
First Challenge:

What could they do?



In Feb 2020, they decided to take any opportunities

Started their learning journey with the theme: Unstoppable



<https://www.youtube.com/watch?v=Yly2gx4dafc>

In Apr 2020, the COVID-19 pandemic

- Another challenge: STEM activities for youth and children.

Senior members started some new ideas – video streaming and making

Facebook Live

- STEAM learning session: Underwater Robotics



Short Videos

- related to automobile and Engineering



In Jun 2020, the COVID-19 pandemic

Third challenge: STEM activities for HKUST students, youth and children.

Another new idea – design STEM Workshops with staff and training other UG students

Online Workshop on Climbing Robots

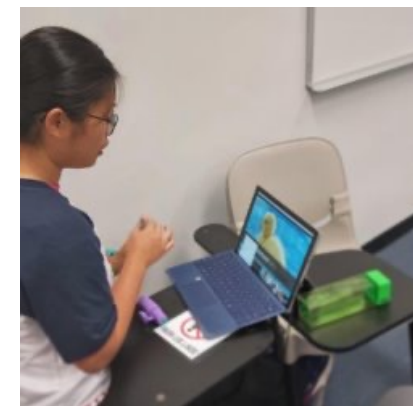


Online Workshop on Electricity



Apr 2021

Easy Robotics@Home Workshop



In Sep 2020, the COVID-19 pandemic

Fourth challenge: Design remote STEM workshops with technical challenges

Underwater Robot Remote Driving Workshop for Families

