



Smart Boxing System

Project Overview

“Smart Boxing System (SBS)” is a digital boxing system with interactive devices and aims to encourage students to learn and do boxing in a safe and fun way.



Team Members

Students:

黃天行
朱洛言
陳子亨
胡銘喆
鍾立新
尤浩然
梁煒謙
林其謙

Teachers:

- Albert WONG (Ying Wa College)
- Cedric LAM (Ying Wa College)
- Jason LEE (Ying Wa College)

Consultant:

- Alex YEUNG (Hong Kong Boxing Association)



Pain Point:

As Hong Kong schools and parents have a stereotype of boxing, affects the willingness to join boxing.

Solutions:

Smart Boxing System (SBS) allows us to practice with digital devices and decreases the chance of injury and make perfect



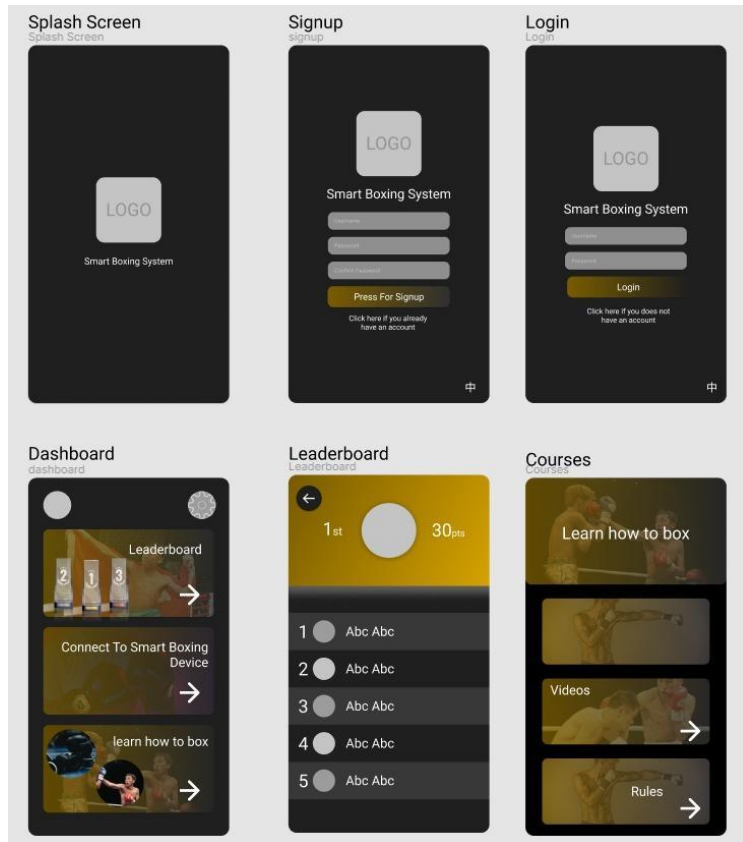


Project Details

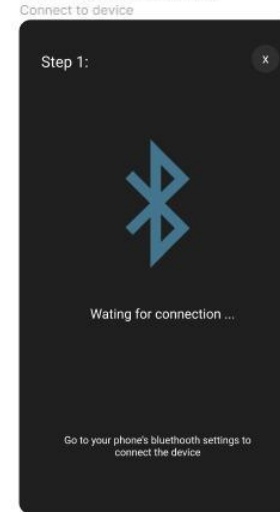
Smart Boxing System (SBS) is a pose detection system with mobile apps and aims to allow participants to join boxing in a safe and fun way. It encourages participants to acquire basic level skills through digital devices.

Features

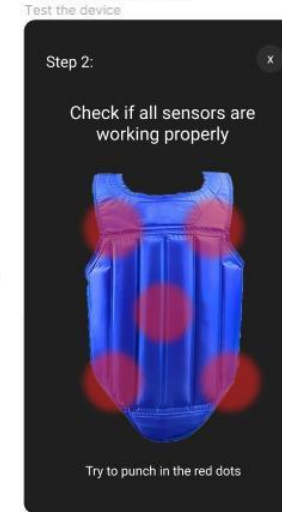
- Students of different majors (Sports & IT) have to learn and work together to realize the concept. SBS has three parts including App, Grooves, and protective gear.



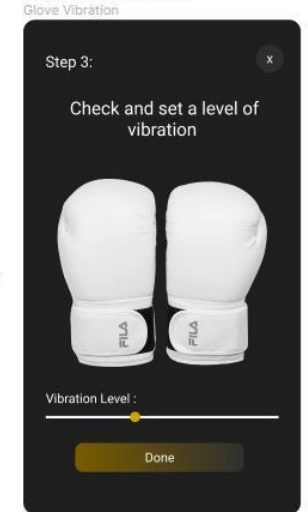
Connect to device



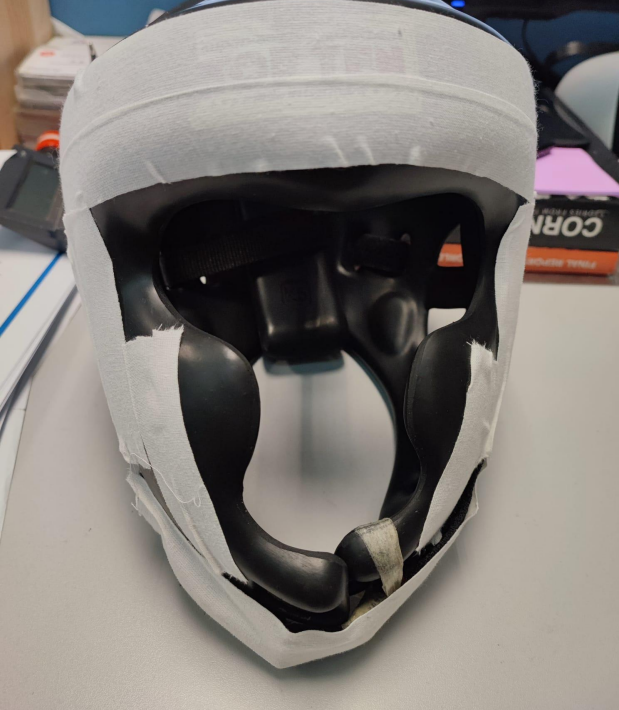
Test the device



Glove Vibration



Smart Boxing System App



02. 用拳套內側、手腕或拳套外側擊打；
03. 擊打對手背部、尤其為頸部及頭部後方；
04. 擊打對手腎臟部位；
05. 身體旋轉/反手擊打；
06. 按住對手並擊打；
07. 鎖住對手的手臂或頭部，或推開對方的手臂；
08. 絆倒對手；
09. 踢倒對手；
10. 撞擊對手；
11. 勒住對手頸部；
12. 拉動對手；
13. 咬人；
14. 造假；
15. 用手臂或手肘推動對手；
16. 推動對手的頭部到繩索上；
17. 手持繩索攻擊對手或進行不當使用；
18. 躺在地上、摔跤及投擲對手；
19. 向正在跌倒或站起的對手進行攻擊；
20. 躲在對手帶以下；
21. 透過完全被動防守來避免到對手擊，包括故意跌倒、奔跑或轉身；
22. 講話；
23. 裁判下令分開(Break)後並不後退；
24. 裁判下令分開(Break)後並不後退及立即擊打對方；
25. 對裁判進行攻擊；
26. 當對手進行攻擊時故意吐出口罩；



Prototype

- Marked area is the sensors session that recommended by Hong Kong Boxing Association (HKBA)

Innovation:
Pose Detection System – Prototype

Admin App:

-Upload New Courses

-Edit Courses

-Delete Courses

Client App:

-Login + Register

-Course Video Player

<https://youtu.be/4bt7chTisSk>



Demonstration Video



Technical Support by Health Sports Technology Association

Target
Participants

Primary School
students

Secondary School
students

1. SBS is supported by Hong Kong Boxing Association, it may be a new competition scheme in Hong Kong / Overseas countries.

2. All students in Ying Wa College will have boxing training classes. The devices facilitate teaching and learning activities. It allows us to launch intraschool and interschool competitions.



Uniqueness
(Innovation
Idea)

Possibility for Partnership and Collaboration (Supported by Hong Kong Boxing Association)

From: s20171013@yingwa.edu.hk <s20171013@yingwa.edu.hk>

Sent: Saturday, January 8, 2022 9:45 AM

To: hkbxa@hkolympic.org

Cc: wkw@yingwa.edu.hk; yingwasports@gmail.com

Subject: 回覆: HKBA + Ying Wa College@ "Smart Boxing System" Invitation on Professional Consultation Session

Dear Alex,

It is so exciting to hear that Hong Kong Boing Association supports our proposal of developing a smart boxing system. The boxing kit is well-received at our side.

For your information, Ying Wa students are having our exam until 14 January 2022.

After the examination, our IT and Sports teachers will lead 5 team members to kick off the project. We will keep you updated regarding the status of the project. Please feel free to call us for further instructions and comments.

Best regards,
CHU Lok-yin, Max
55339103

Date: 2022 年 1 月 17 日週一 下午 2:10↓

Subject: RE: HKBA + Ying Wa College@ "Smart Boxing System" Invitation on Professional Consultation Session↓

To: (5C-07) 朱洛言(5C-07) CHU LOK YIN <s20171013@yingwa.edu.hk>↵

Dear Max,↵

↵

Thank you for your enthusiasm and support for boxing. Your plan has a positive effect on the development of boxing in Hong Kong. Of course we support it. If you have any questions, please feel free to contact us↵

↵

Best regards, ↵

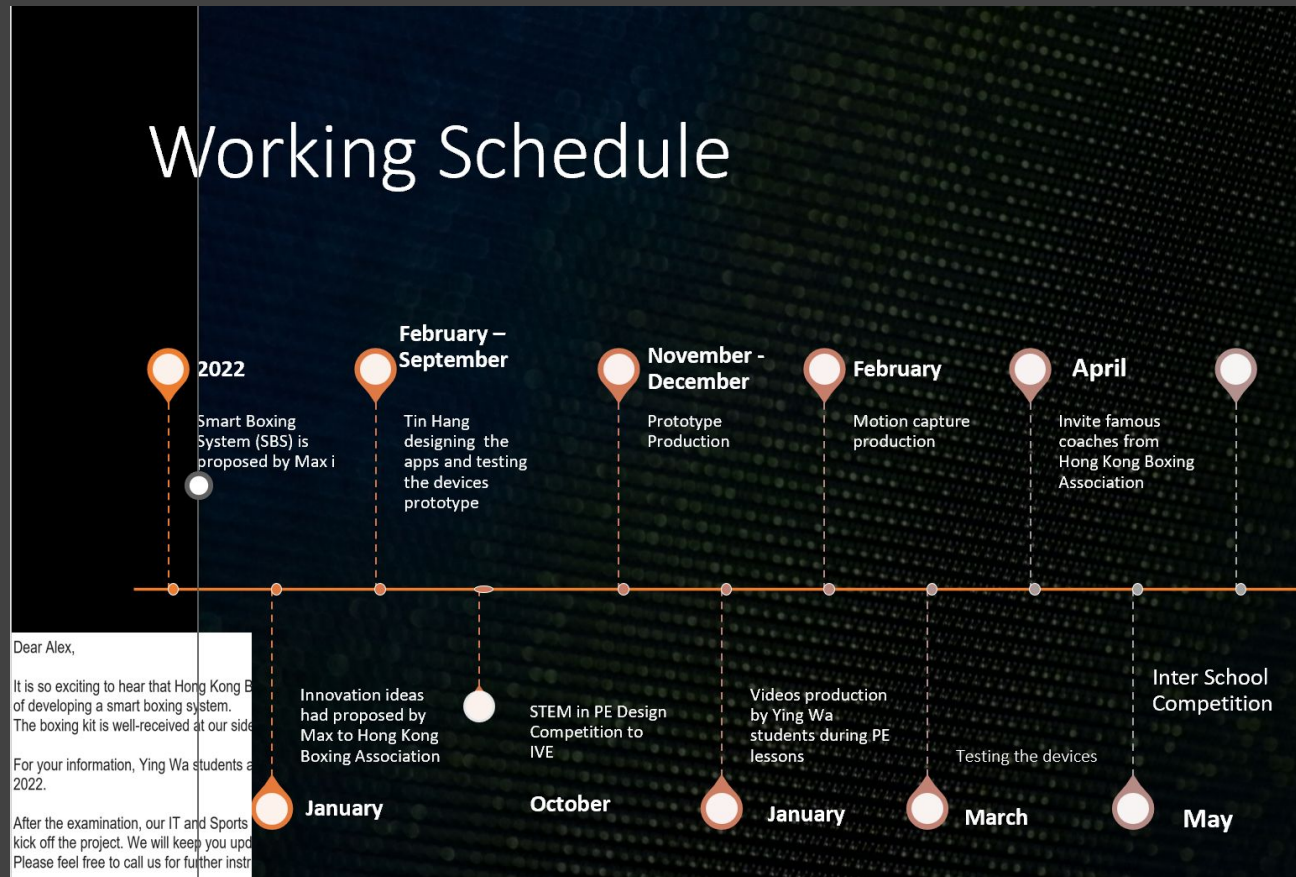
Alex YEUNG↵

Sports Executive | Hong Kong Boxing Association↵

Tel: 2504-8133↵

Fax: 2882-5443↵

How far we could go? Technology revitalizes sports participation patterns.....



- Student version
- Elderly version
- Different training level

Different Training Level

1. Learning Apps

2. SBS system with feedback

3. SBS vs SBS (Network)

4. Half contact, helmet & armor

5. Half contact with helmet

6. Full contact

It promotes boxing activities and solves the pain point!!! 😊

Materials for the prototype

我好有興趣個Boxing Project ! 尤其我又讀PE又讀ICT 😂

至於Project App interface、同billbaord嗰啲就比較簡單，App嘅frontend 建議用啲cross platform 嘅 framework 會好啲，咁IOS同Android都用到(建議用React-Native，比較適合新手，同埋出名、系統成熟)

billbaord就簡單寫個API，將啲Data store喺SQL database 就ok。

Motion Tracking 嗰到會難啲，我有兩個諗法，一個係Camera Vision，用Cameras track人嘅Motion

第二就係用Gyro sensor擺喺手腳，再將啲Data轉成一個Virtual人

14:18

