University-based Electronics Technology Project Study 2008
Project Profiles

Project 1

Name of University: The Hong Kong Polytechnic University

Name of Department: Industrial Centre

Project Title 1	Music CD Player
Supervisor	Jasper Wong
Contact of Supervisor	e-mail: icjwong@polyu.edu.hk Tel: 27667611
Brief Descriptions of the Project	This project makes use of a CDROM drive from a disposed PC to build a CD music player. It is suitable for those students interesting in digital, audio and power electronics, and producing their electronic products.
Expected number of students (e.g. 1-3, 2-4)	2 to 4 students
Target Class Levels	S4 or S6
Pre-requisite qualification	Nil
Medium of instruction	Chinese with English terminology

Project 2

Name of University: The Hong Kong Polytechnic University

Name of Department: Industrial Centre

Project Title 2	Electronic Clock Tower
Supervisor	Edward Cheung
Contact of Supervisor	e-mail: icec@polyu.edu.hk Tel: 27667640
Brief Descriptions of the Project	Students shall design and fabricate a real-time clock tower. It is suitable for students with creativity, sensitive to prospective 3-D profile and interested in arts, design and electronics. Students will need to perform mechanical design, measurement, operate machines and fabrication with plastics sheet stock.
Expected number of students (e.g. 1-3, 2-4)	2 to 4 students
Target Class Levels	S4 or S6
Pre-requisite qualification	
Medium of instruction	Chinese with English terminology

Project 3

Name of University: The Hong Kong Polytechnic University

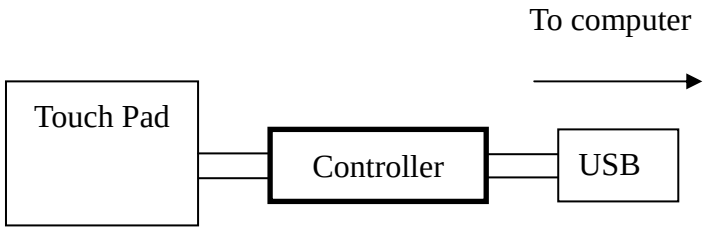
Name of Department: Industrial Centre

Project Title 3	Pedometer
Supervisor	Edward Cheung
Contact of Supervisor	e-mail: icec@polyu.edu.hk Tel: 27667640
Brief Descriptions of the Project	Students shall design and fabricate a pedometer in this project. A pedometer counts the number of steps that a user walks or jogs. It is often being used as a measurement on the amount of exercise a user has done. Students will need to perform mechanical design, measurement, operate machines and fabrication a prototype with plastics sheet stock.
Expected number of students (e.g. 1-3, 2-4)	2 to 4 students
Target Class Levels	S4 or S6
Pre-requisite qualification	
Medium of instruction	Chinese with English terminology

Project 4

Name of University: The Hong Kong Polytechnic University

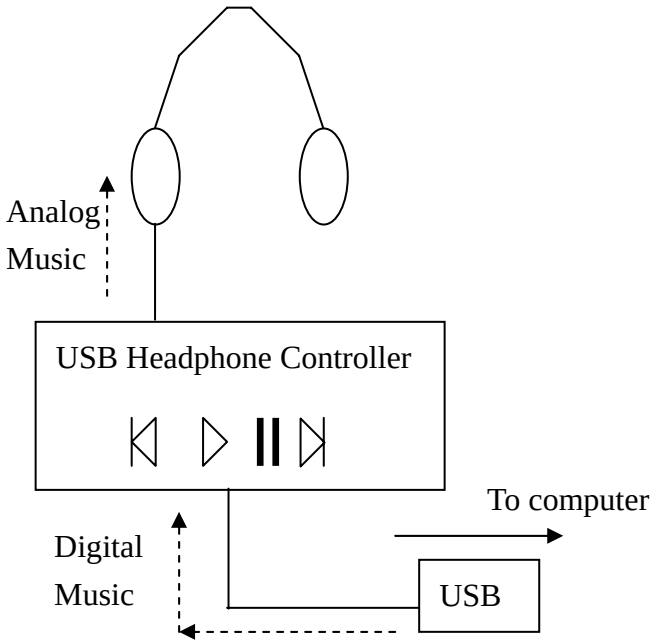
Name of Department: Department of Electronic and Information Engineering

Project Title 4	Touch Switch for the Motion-Challenged Students
Supervisor	Dr C K Leung
Contact of Supervisor	e-mail: enchikin@inet.poly.edu.hk Tel: 2766 6260
Brief Descriptions of the Project	Project Description: The students will design and make a touch switch to be connected to the computer via the USB port. Physically-handicapped students can respond to the computer by touching a touch pad. This is equivalent to pressing the Enter key on a normal keyboard. This device enables the motion-challenged students to respond to computer-based training instructions conveniently and hence can be useful tool in computer-based training. Learning Outcomes: By going through this project, the student will learn (i) theory of a touch pad, (ii) how to design a basic electronic circuit, (iii) how to design and make a printed circuit board, (iv) how to integrate different electronic components into a complete product. Furthermore, the student will learn (v) how to find information, solve problem under constraints, and meet users' requirements. 
Expected number of students (e.g. 1-3, 2-4)	2 – 4
Target Class Levels	S 4 or above
Pre-requisite qualification	Nil. (Suitable training will be provided)
Medium of instruction	Cantonese, supplemented with English terms

Project 5

Name of University: The Hong Kong Polytechnic University

Name of Department: Department of Electronic and Information Engineering

Project Title 5	USB Headphone Controller
Supervisor	Dr C K Leung
Contact of Supervisor	e-mail: enchikin@inet.polyu.edu.hk Tel: 2766 6260
Brief Descriptions of the Project	Project Description: In this project, the students will make a USB Headphone Controller that connects to the computer via the USB port, and a commercially available headphone or earphone. The computer plays music in digital format to the USB headphone controller, which in turn decodes the digital signal into the analog format and sends the signal to the headphone. Control functions such as "PLAY", "PAUSE", "NEXT", "PREVIOUS" will be implemented. Learning Outcomes: By going through this project, the student will learn (i) theory of digital sound, (ii) how to design a basic electronic circuit, (iii) how to design and make a printed circuit board, (iv) how to integrate different electronic components into a complete product. Furthermore, the student will learn (v) how to find information, solve problem under constraints, and meet users' requirements. 
Expected number of students (e.g. 1-3, 2-4)	2 – 4
Target Class Levels	S 4 or above
Pre-requisite qualification	Nil. (Suitable training will be provided)
Medium of instruction	Cantonese, supplemented with English terms

Project 6

Name of University: The Hong Kong Polytechnic University

Name of Department: Department of Electrical Engineering

Project Title 6	Microprocessor-based controller for domestic or educational applications
Supervisor	Dr Edward LO
Contact of Supervisor	e-mail:eewclo@polyu.edu.hk Tel:27666144
Brief Descriptions of the Project	Using a single-chip microprocessor with other interfacing electronics to develop some useful application for domestic application or for educational purposes, such as educational toys, home security systems, etc.
Expected number of students (e.g. 1-3, 2-4)	2-4 students
Target Class Levels	S4 or S6
Pre-requisite qualification	Interested in microprocessor control
Medium of instruction	Cantonese