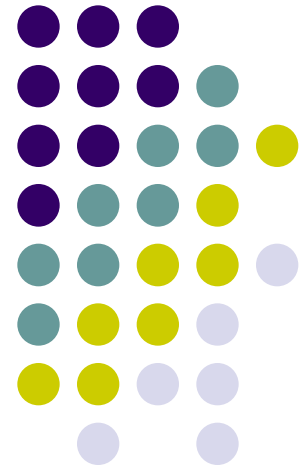


Introduction to the Course

EE2405

嵌入式系統與實驗

Embedded System Lab





Lab Material

- **www.ee.nthu.edu.tw/ee240500**
 - ee2405/eenthu2405





Teams Channel

- Please join our course's Team channel
 - EE2405 嵌入式系統與實驗 (Spring 2022)
 - <https://teams.microsoft.com/l/team/19%3ae-s6facSwNi-1L7JDqPV1jkkkMK8aQnh1gaBWynROGc1%40thread.tacv2/conversations?groupId=2626e1e6-a6f8-4664-a8f8-bca5e18ad408&tenantId=6c3bc511-43c7-4596-baeb-2335c69c41f1>

Course Objectives and Contents



- Learn to use a micro-controller in an embedded system
- Learn to code for a micro-controller with an embedded OS
- Familiar with various interface and communication standards
- Familiar with various sensor technologies

Lab System Architecture

Sensors Actuators

Accelerometer

Magnetometer

Gyroscope

Compass

Servo

Ultrasound

Camera

IR gesture

RF ID

Display

16 Character x 2
Line LCD

128*128 color LCD

ARM M4 + Mbed



WIFI Bluetooth Zigbee



PC/Notebook
(Win/Mac)



GPIO

I2C/SPI

PWM

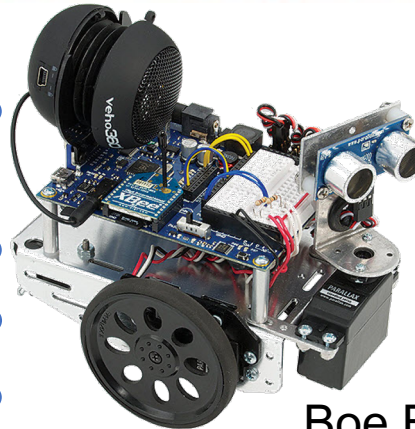
ADC/DAC

USB

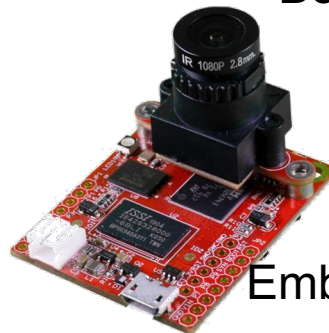
Ethernet

USB/program

USB/terminal

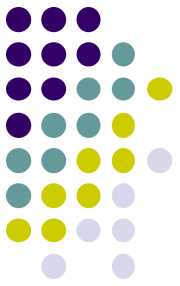


Boe Bot Car



Embedded Vision
(Optional)

Why Learn Embedded Systems?



- Embedded system is a form of computer system
- Many practical applications
 - Internet of Things
 - Car electronics
 - Consumer electronics
 - Industrial electronics
 - ...



Course Evaluation

- Lab report 7%
- Lab demo 13%
- Homework 20%
- Midterm Exam 30% (**April 13th, 2022**)
- Final Project/Exam 30% (**June 1st, 2022**)



Lab and Homework Due Days

- For each lab, please demo the lab on time.
 - You can finish the demo on the lab time on the week or schedule a time slot at TA hour before the following lab.
 - After one week, no lab demo will be accepted.
 - Each student can only use TA hours to demo for 3 times.
- For each lab, please submit report after each lab.
 - Submit to EEclass: lab results/screen shots and discussion.
 - Before the following lab.
 - No delay is allowed.
- For each homework, if delayed within one week, the score will get 20% discount.
- After one week, no credit will be given.

Break or Damage Board or Material

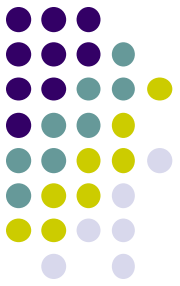


- Please be careful with your board and lab material
- For each broken board or material,
downgrade the final grade by one level
 - For example, A- \rightarrow B+



Cheating and Plagiarism

- Please do the lab and homework on your own efforts.
- What are exactly plagiarism?
 - Any copying of lab report, homework and exam answers.
 - Read others' codes and then write the program.
 - Ask others to write programs and answer for you.
 - Give your codes or homework to others.



X Marks and 3 Strikes Rule

- One X mark will be recorded for the following condition
 - Miss a lab demo after one week.
 - Miss a homework after one week.
 - Cheating in exam.
 - Copy other's codes or project.
 - Give your code or homework to others.
 - Miss an exam.
- If you get **3** Xs, you will get an X for the final grade.
- If you have any X record, no extra bonus will be given at the final grade.
- More details of rules are listed in <https://www.ee.nthu.edu.tw/ee240500/pages/class-rules.html>