Project II

INTRODUCTION

Agenda

- The Project Concept
- Project II
- Module Content
- Module Assessment
- What You'll Learn

A bit about Me

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The Overall Project Concept

What's IoT:
https://www.youtube.com/watch?v=6mBO2vqLv38

The IoT stream aims to produce graduates who can immediately engage in industry and research

"Challenged to combine the knowledge and skills acquired in the key disciplines for IoT"

Ethos of "permissionless innovation"

- Encourage experimentation with the various technologies

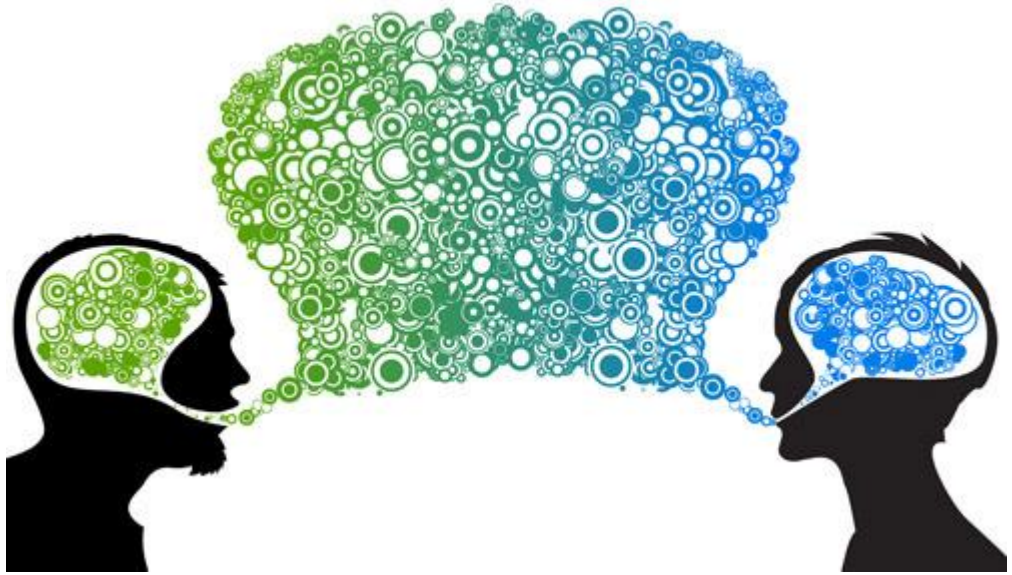
Project II - Aims

You will combine skill and knowledge learned in other modules to create a project.

You will learn fundamentals of distributed version control systems.

You will learn and demonstrate basic communication skills

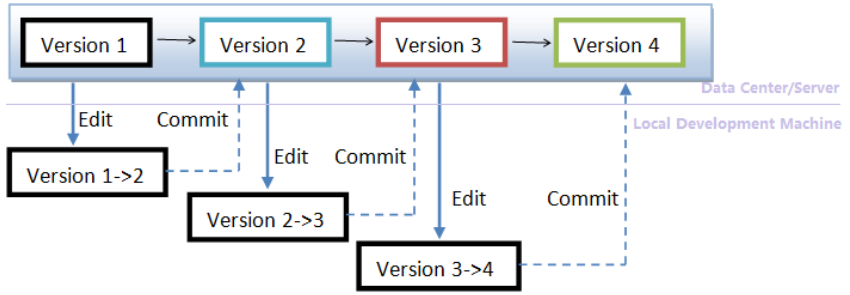
You will present your ideas and work.



Project II Content

Come up with a an idea for a project/piece of work

Using this idea, start developing a solution



Use this to start a "digital portfolio" using a distributed version control system.

Communication of ideas and concepts in a correct, clear and modern format.

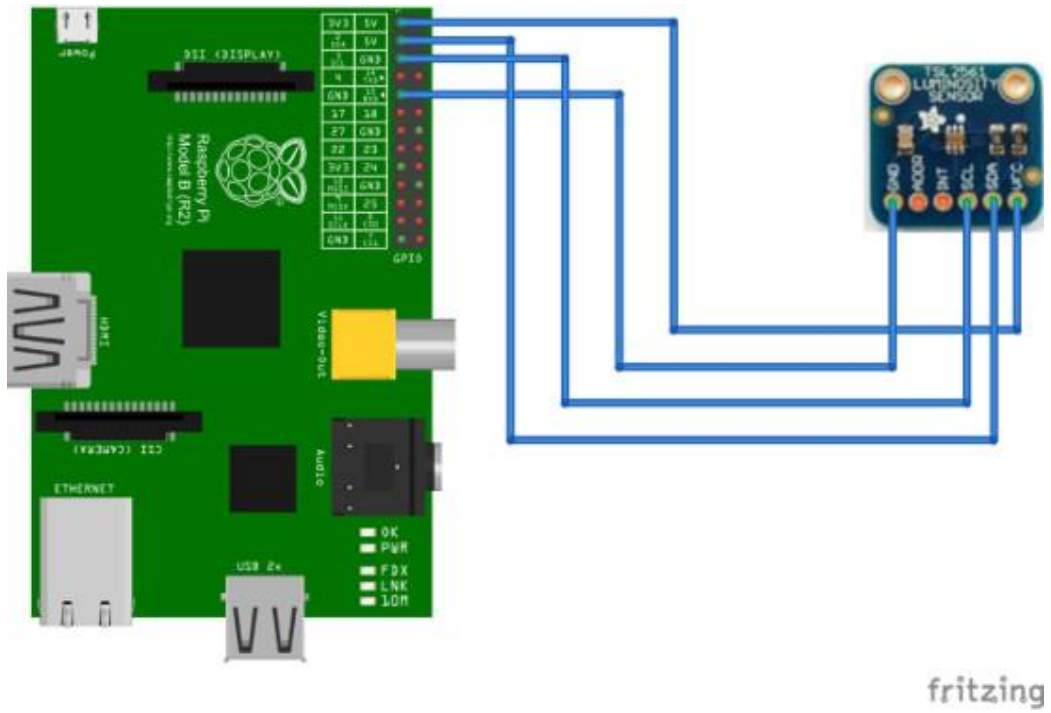
Project II - You'll learn how to

Create a working "artifact" that:

- combines core skills and knowledge from at least two domains of your programme (i.e. Programming, Computer Systems...)
- Has an IoT “flavour”

Manage your project using a suitable version control system.

Report and communication you work though suitable documents and presentations



Project II - High Level Syllabus(Tentative)

Source Control
- Git/Github/Bitbucket

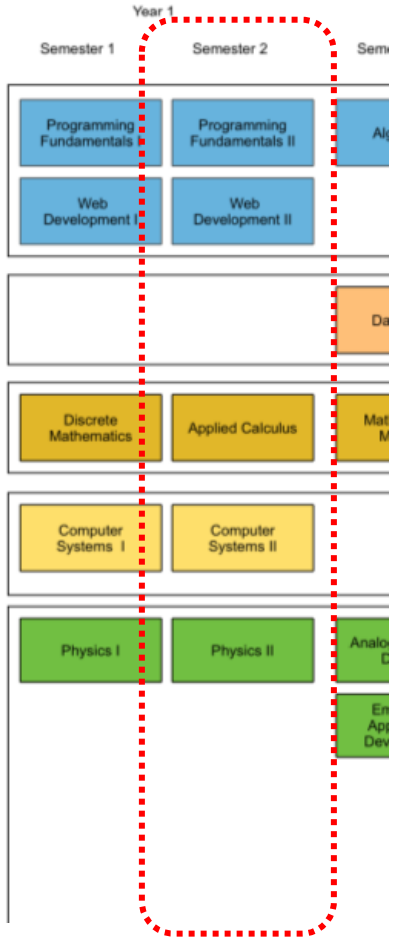
Single Board Computer(SBC) Programming Basics
- Pi/ Galileo programming

Microcontroller Basics
- Arduino/Galileo

Communication Modalities and Skills
- Presentation Tools (PP/Prezzi/Trello)
- Design Tools (Fretzig)
- Documentation Tools(Markdown, Doc generation

SBC breakout and General IO
- Bread boards, Soldering, Sensing

Domains


Year 1
Semester 1
Semester 2
Programming Fundamentals
Programming Fundamentals II
Web Development I
Web Development II
Discrete Mathematics
Applied Calculus
Computer Systems I
Computer Systems II
Physics I
Physics II

Project II - Delivery & Assessment (Tentative)

Lectures will cover supporting topics

- Version control Systems
- Project planning and design
- Technical presentation

Module is 100% Continuous Assessment

- Milestones to keep you on track
- All Formative until final submission (used for feedback)

Date	Activity
TODAY!	1st Lecture
Week 5 (Feb 24)	Project Concept
Week9 (March 24)	Status Report
Week 12/13 (April 21/28)	Final Submission/Presentation

Project II - Example

Title: Temperature Sensing Application:

Overview: Application that reads the temperature data from a digital temp sensor

Description: Writes data to a file and standard output(console). To connect the temperature sensor, the student constructs their own "breakout board" for the Single Board Computer (i.e pi) which will allow them to easily integrate various sensing and acuation circuits to the SPC via the GPIO. The application allows the user to enter a lower and upper bound for the temperature. The application displays "Too Cold" if temp is less than lower bound, "Too Hot" if temp is greater than upper bound, and "OK" otherwise.

Candidate Technologies/Domain:

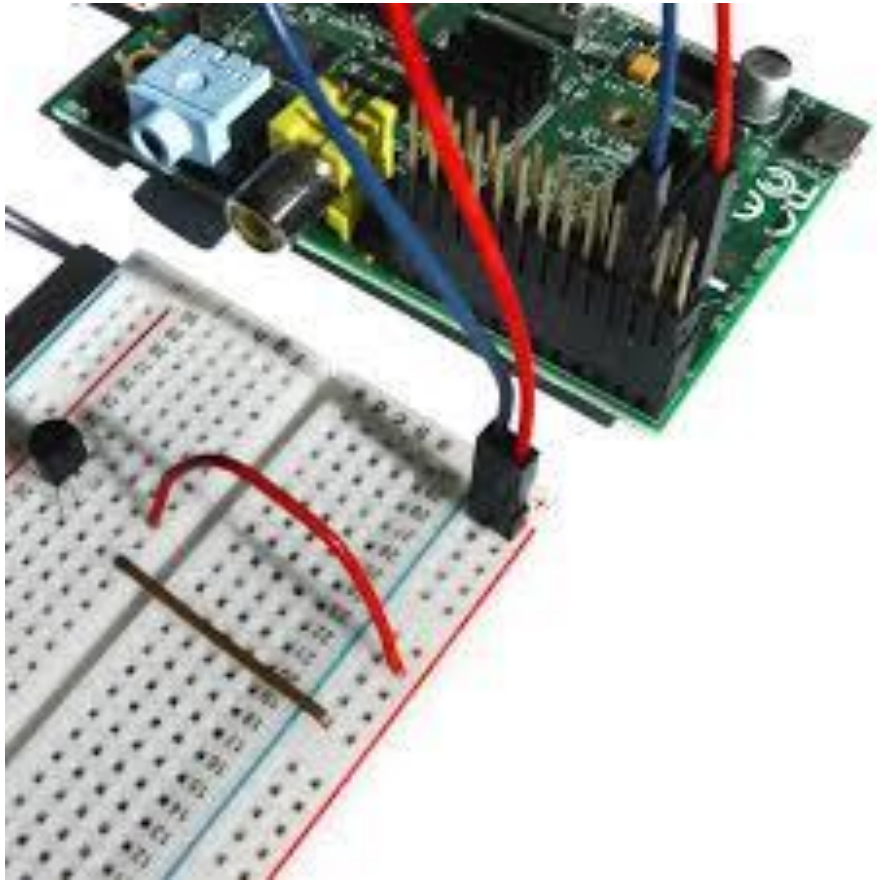
Single Board Computer (e.g. Raspberry Pi,Edison) / Networks & Cloud

Programming Language: Java,Python,Javascript/Programming

Sensor: DS18B20 "one wire" sensor/ Devices & Systems

Electronic Equipment: Resistors, breakout board/bread board/ Devices & Systems

Other Practical Skills/Domains: Programming(fundamentals), soldering and wiring, computer architecture, operating systems, digital electronics.



Previous Project

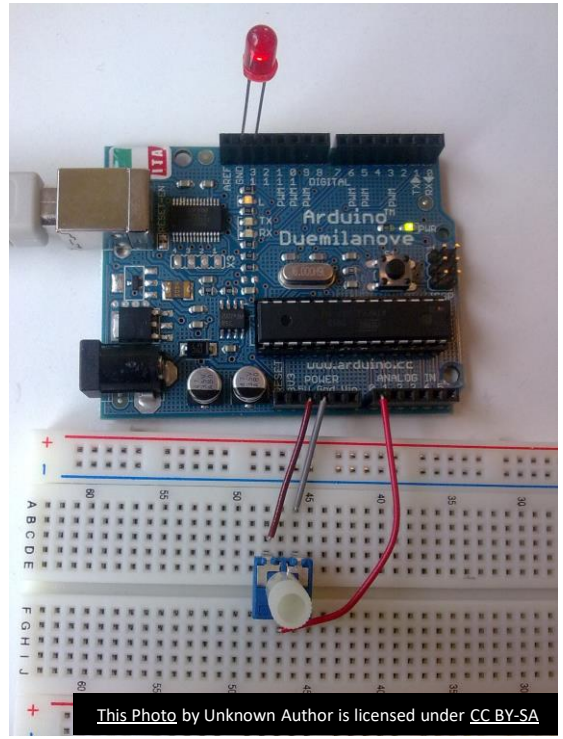
README.md

Project FINO

Automated bird feeder built using:

- Arduino.
- Grove Servo.

Equipment



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Project II - Ideas