

# PC/CP 320 Project Overview

Terry Sturtevant

Wilfrid Laurier University

October 31, 2018

# Outline

# Outline

There are 2 projects this term.

# Outline

There are 2 projects this term.

- *Integration* project

# Outline

There are 2 projects this term.

- *Integration* project

Brings together several things you've done in lab

# Outline

There are 2 projects this term.

- *Integration* project  
Brings together several things you've done in lab
- *Exploration* project

# Outline

There are 2 projects this term.

- *Integration* project

Brings together several things you've done in lab

- *Exploration* project

Allows you to investigate something that has been mentioned, but you haven't used in the lab

# Outline



# Outline

Why two projects?

# Outline

Why two projects?

- The integration project only involves previously-seen material.

# Outline

Why two projects?

- The integration project only involves previously-seen material. The challenge is adapting the code to incorporate all of them.

# Outline

Why two projects?

- The integration project only involves previously-seen material. The challenge is adapting the code to incorporate all of them.
- The exploration project introduces something you've never used.

# Outline

Why two projects?

- The integration project only involves previously-seen material. The challenge is adapting the code to incorporate all of them.
- The exploration project introduces something you've never used. The challenge is learning how to use it.

# Outline

Why two projects?

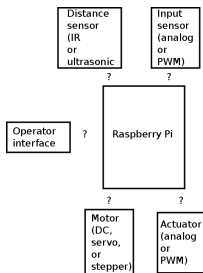
- The integration project only involves previously-seen material. The challenge is adapting the code to incorporate all of them.
- The exploration project introduces something you've never used.

The challenge is learning how to use it.

Trying to combine both would make it too easy to get overwhelmed.

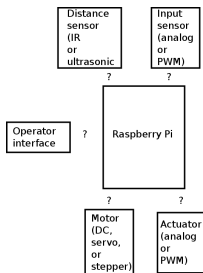
# Integration project

# Integration project





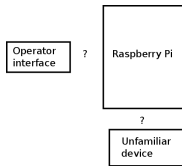
# Integration project



Note that the “?” may include more than just signals, such as a D/A or A/D converter.

# Exploration project

# Exploration project



- There are 4 and one half weeks, (9 lab periods), exclusively for the projects.

- There are 4 and one half weeks, (9 lab periods), exclusively for the projects.

Two weeks are exclusively for the integration project.

- There are 4 and one half weeks, (9 lab periods), exclusively for the projects.

Two weeks are exclusively for the integration project.

Two weeks are mostly for the exploration project.

# Schedule

# Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.



# Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.

# Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.

# Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.
- Lab 1B; Demonstrate previous device *and one other*.

# Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.
- Lab 1B; Demonstrate previous device *and one other*.  
Decide on 3<sup>rd</sup> device to be used.

## Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.
- Lab 1B; Demonstrate previous device *and one other*.  
Decide on 3<sup>rd</sup> device to be used.
- Lab 2A; Demonstrate previous devices *and one other*.

## Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.
- Lab 1B; Demonstrate previous device *and one other*.  
Decide on 3<sup>rd</sup> device to be used.
- Lab 2A; Demonstrate previous devices *and one other*.  
Decide on 4<sup>th</sup> device to be used.

## Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.  
A motor is easy since those are recent.
- Lab 1B; Demonstrate previous device *and one other*.  
Decide on 3<sup>rd</sup> device to be used.
- Lab 2A; Demonstrate previous devices *and one other*.  
Decide on 4<sup>th</sup> device to be used.
- Lab 2B; Demonstrate all devices together.

## Schedule

Two weeks, (i.e. 4 lab periods), are exclusively for the integration project.

- Lab 1A; Demonstrate 1 input or output device working.

A motor is easy since those are recent.

- Lab 1B; Demonstrate previous device *and one other*.

Decide on 3<sup>rd</sup> device to be used.

- Lab 2A; Demonstrate previous devices *and one other*.

Decide on 4<sup>th</sup> device to be used.

- Lab 2B; Demonstrate all devices together.

*They may not yet interact; they just need to all be connected and functional at the same time.*



# Schedule (continued)

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*  
This includes operator interaction.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*  
This includes operator interaction.
- Lab 4A; Demonstrate basic functionality of the device.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*  
This includes operator interaction.
- Lab 4A; Demonstrate basic functionality of the device.  
Show it doing *something*.



## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*  
This includes operator interaction.
- Lab 4A; Demonstrate basic functionality of the device.  
Show it doing *something*.
- Lab 4B; Demonstrate advanced functionality.

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.  
There are lots of resources online.
- Lab 3B; *Demonstrate the completed integration project.*  
This includes operator interaction.
- Lab 4A; Demonstrate basic functionality of the device.  
Show it doing *something*.
- Lab 4B; Demonstrate advanced functionality.  
Show it doing *something that wasn't in any of the resources you found*.
- Lab 5A; *Demonstrate the completed exploration project.*

## Schedule (continued)

There are 2 and one half weeks, (i.e. 5 lab periods), mostly for the exploration project.

- Lab 3A; Choose device to explore and learn about it.

There are lots of resources online.

- Lab 3B; *Demonstrate the completed integration project.*

This includes operator interaction.

- Lab 4A; Demonstrate basic functionality of the device.

Show it doing *something*.

- Lab 4B; Demonstrate advanced functionality.

Show it doing *something that wasn't in any of the resources you found*.

- Lab 5A; *Demonstrate the completed exploration project.*

Be sure to highlight what you came up with on your own.

# Project Substitution Option

# Project Substitution Option

- You have the option of *combining* the projects as follows:

# Project Substitution Option

- You have the option of *combining* the projects as follows:  
An *unfamiliar* input device can replace one input device for the integration project.

# Project Substitution Option

- You have the option of *combining* the projects as follows:  
An *unfamiliar* input device can replace one input device for the integration project.  
An *unfamiliar* output device can replace one output device for the integration project.

# Project Substitution Option

- You have the option of *combining* the projects as follows:
    - An *unfamiliar* input device can replace one input device for the integration project.
    - An *unfamiliar* output device can replace one output device for the integration project.
- If you make this your 4<sup>th</sup> device, you can determine feasibility during the first 3 lab periods.**



## Project Substitution Option

- You have the option of *combining* the projects as follows:
    - An *unfamiliar* input device can replace one input device for the integration project.
    - An *unfamiliar* output device can replace one output device for the integration project.
- If you make this your 4<sup>th</sup> device, you can determine feasibility during the first 3 lab periods.**

This means that you are basically doing the projects in parallel.

# Ramifications

# Ramifications

- For the exploration project, you make a reduced test program for the unfamiliar device.

# Ramifications

- For the exploration project, you make a reduced test program for the unfamiliar device.  
(In fact, it may be similar to what you use for early testing of the device.)

# Ramifications

- For the exploration project, you make a reduced test program for the unfamiliar device.  
(In fact, it may be similar to what you use for early testing of the device.)  
It may use functionality you created for the integration project.

## Ramifications

- For the exploration project, you make a reduced test program for the unfamiliar device.  
(In fact, it may be similar to what you use for early testing of the device.)  
It may use functionality you created for the integration project.
- *If you can show it working on time as the 4<sup>th</sup> device, the integration demonstration can be delayed.*