EOS1
Course project

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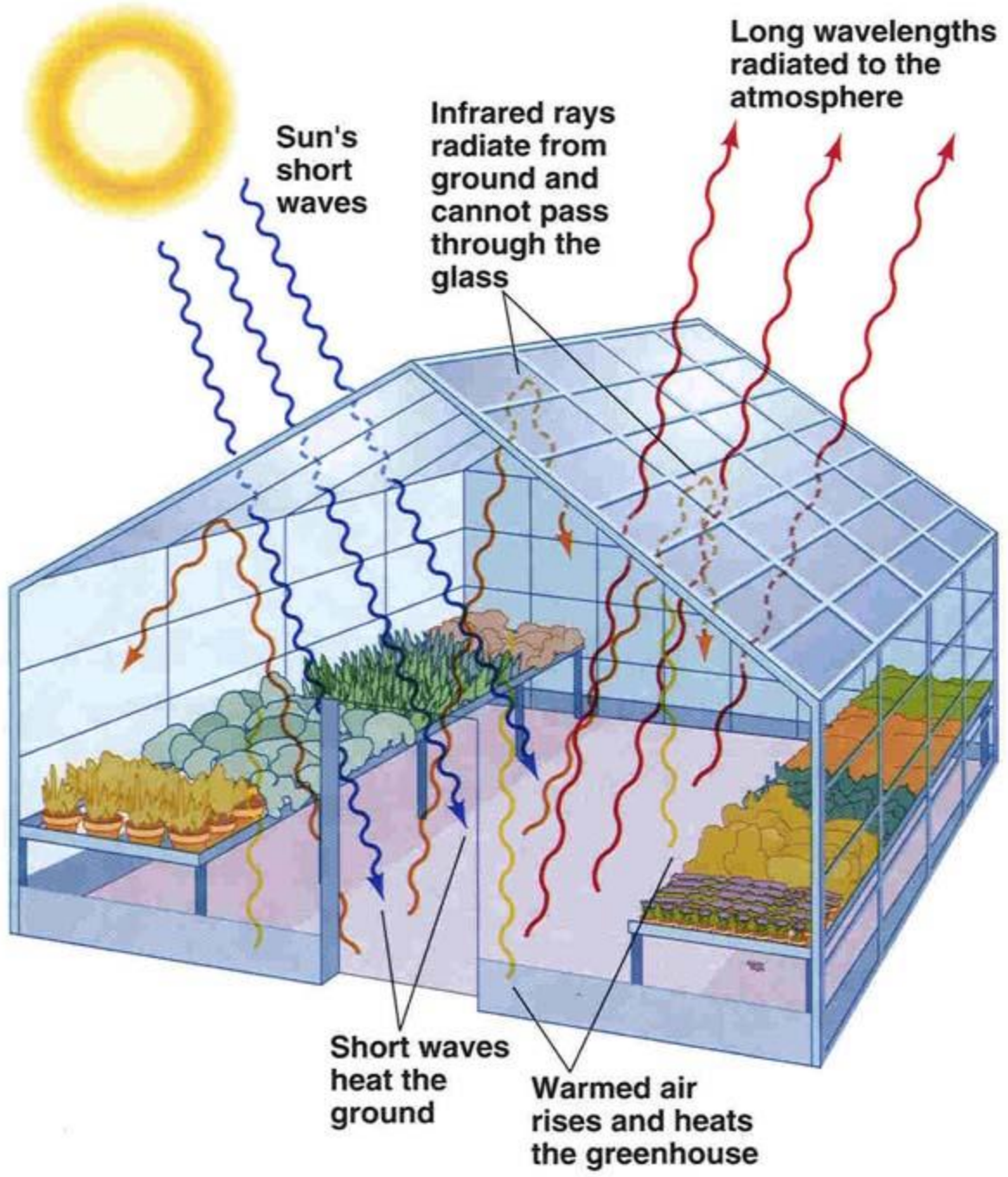
Engineering in Software Technology

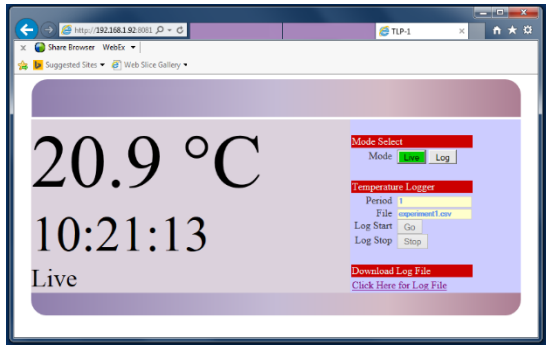
Greenhouse Control

- Sensors
  - Temperature
  - Humidity
  - Daylight
- Actuators
  - Heater
  - Window opening
  - Artificial daylight
- User interface
  - Web interface



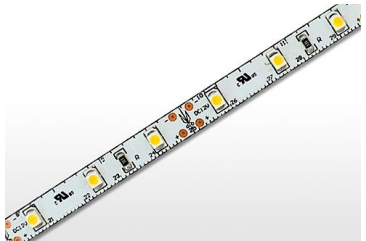
Greenhouse model

User interface



Control system

Greenhouse



Requirements

Feature	Technology
Measure temperature	I^2C bus
Measure humidity	I^2C bus
Measure light intensity	Analog
Control servo motor for window	PWM
Control heater	Digital on/off
Control light intensity	PWM
User interface: Live monitoring of sensors Control of actuators	Web interface

Options

Automatic control of climate, e-mail to user when temperature drops etc..

Project plan

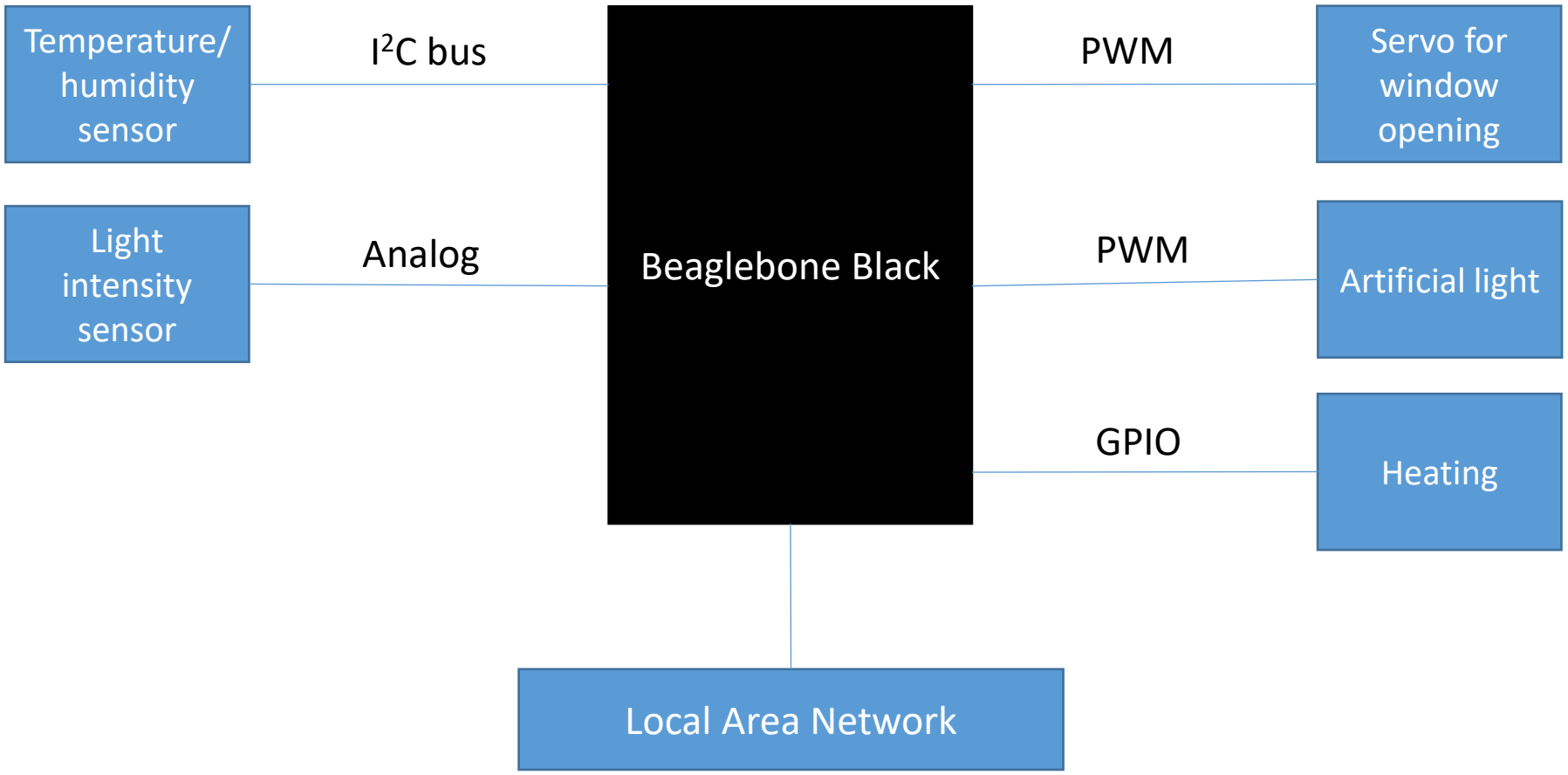
- Week 45 and 46
  - Understand the problem
  - Make your group project plan
  - Design and implement your Greenhouse Controller to meet requirements
    - Integrate knowhow from previous exercises into this project

- Week 47
  - Present/demonstrate for class
  - Hand in zip'ed project folder on *itslearning*
    - *Include executable program(s) (C, Bash, html, bonescript, etc) as well as source code.*

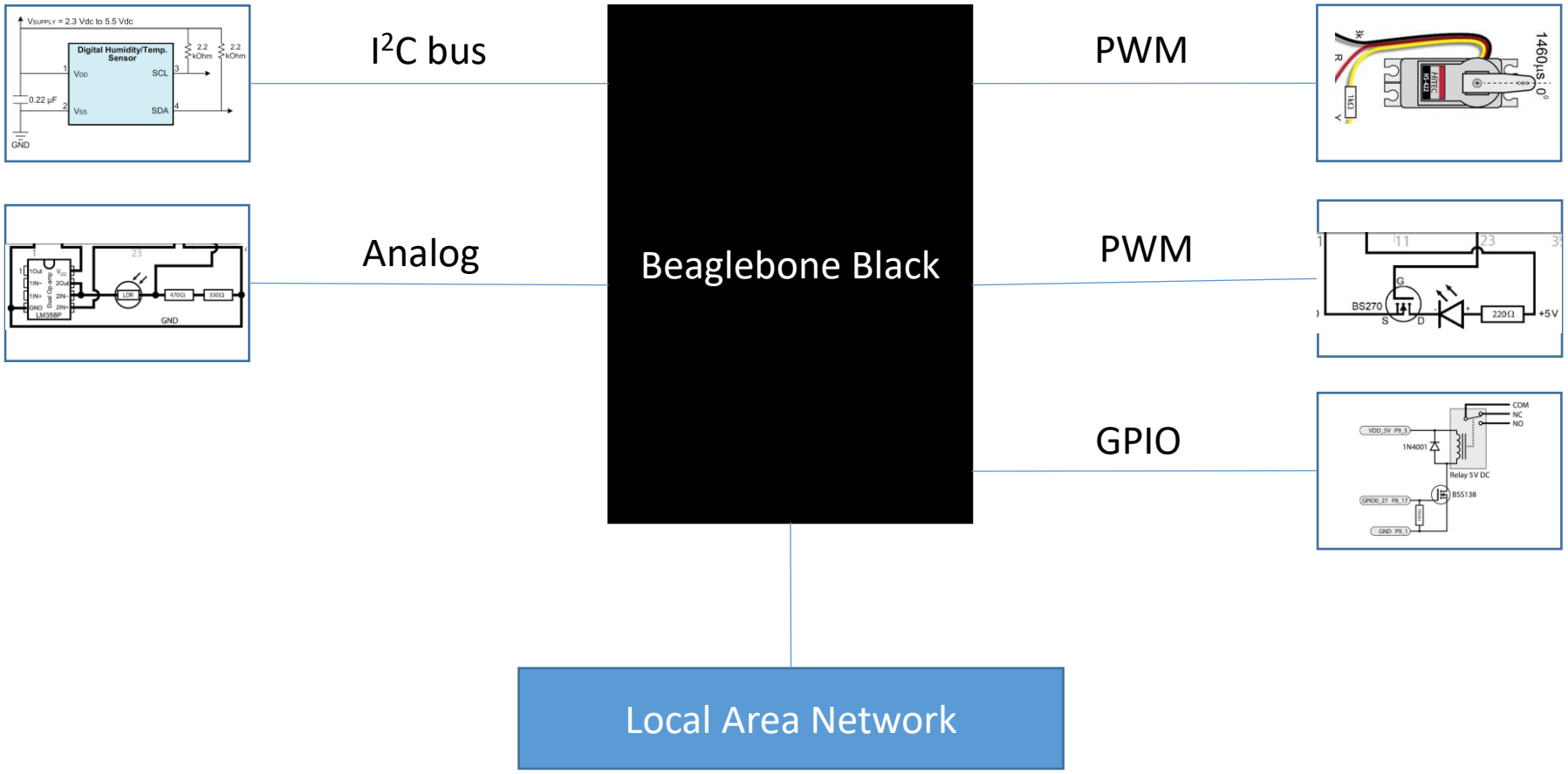
Documentation and Report

- Header in all files with filename, author and date
  - Header above all functions/methods with name, purpose, description of input parameters and return values.
- Document your code with plenty of comments
- Document which Beaglebone pins are used for which sensors and actuators (e.g. in a table).
- VIA standard report layout
- Document your interface circuits (include block and circuit diagrams)
- Document your code (include relevant UML diagrams, doxygen reports, etc.)
- User manual in appendix
- No process report needed

The control system



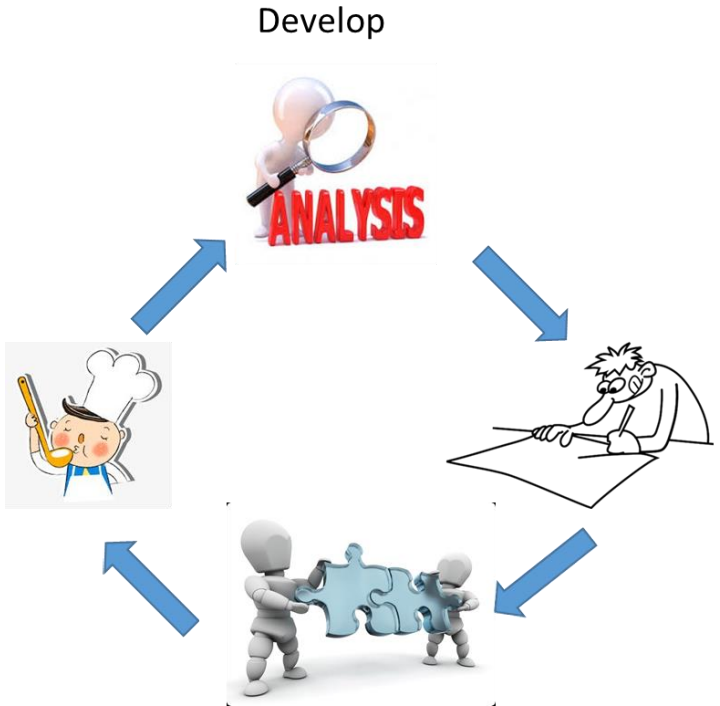
The control system



Deadline

23 November 2021:

- 8:20 Presentation in class
- 23:59 Upload final solution to *itslearning*



Document

Present for class