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Laboration 3

DA330

Software Engineering

15 hp (VT23)

Content

Preparation for Lab 3 –Arduino and the Smart House

To be able to fulfil the Arduino lab in 2-3 hours it is required from you to make some preparations. That is, you should do those preparations before you enter Lab 3. The preparations may take about 1-2 hours.

This lab is performed on Campus and in group of 4 students, but preparations are done individually.

Study the smart home kit that will be used in the course KS0085 Keyestudio Smart Home Kit for Arduino - Keyestudio Wiki

- What code is uploaded/found on Arduino before we make any changes?
- What is the password to lock up the door?
- Project 6 is with Photocell sensor. How is this sensor used in the project? Can you find the code for this sensor?

Download the Processing Arduino development tool from http://arduino.cc/en/Main/Software. The programming language will be Java, however, in this lab the use of objects and classes will probably not be necessary.

- There are several examples to study for learning purposes, and for purposes of starting points for further developments. You shall study the following simple examples that you find from the Arduino development tool:

  - File→ Examples → Basics → Blink
  - File→ Examples → Basics → AnalogReadSerial
  - File→ Examples → Basics → DigitalReadSerial
  - File→ Examples → Digital → BlinkWithoutDelay
  - File→ Examples → Analog → AnalogInOutSerial

Note that there is no point in running those examples since they should be uploaded and executed at an arduino microprocessor board. Still, study to get an idea on the principles of programming the arduino. Use some time to think about how to solve the lab tasks with respect to the examples.

Lab task description and the aim of the lab

Establish a connection between your computer and a prototype or a smart house.

Learn how to program in Arduino environment.

Now do the following assignments:

1. Send a signal to White LED to blink, and to Yellow LED to shine.
2. Photocell sensor- White LED should shine when it is dark. Show the value on Serial Monitor
3. Change the password and lock up the door.
4. After you put correct password and the door is open, let “Welcome home” text be shown on LED and let song Ode to Joy be played.
5. If you write wrong password 3 times, let alarm sound and White LED blink until you long press Button1 and deactivate the alarm.

Good luck!