**Request for: B1.1 Assignment Creative electronics Report**

**Boomen, G.J.A. van den**

Active attitude with good results

**final feedback form**

* 01. quality of deliverables handed in by the student
  + 1. Mention each deliverable and give feedback on the quality of them (individual and integrated).

Deliverables: Weekly homework, final report about the practical assignments, mini project and poster.

**Weekly homework:**

Always in time and complete, overall with a few mistakes.

Final report about practical assignments:

  The idea behind these practical assignments is that you see the connection between theory (like calculations) and practice, and learn how to integrate new knowledge in your practical work. If theory and practice don't match you should try to find out why.

The report looks nice and structured with pictures, chapter headings.

* + 1. This handles about a relative complicated resistor network incorporating 6 resistors. Two of the resistor values are 1.8kOhm and 8.2kOhm. You however make calculations with 2.2 & 3.3kOhm. Next to the calculations you show a picture of the circuit you've build using the right resistor values (1.8 &8.2). Given the fact that you've chosen the wrong resistor values for the calculation, the calculations are OK. The measurement results however are almost the same as the calculated values, this seems rather impossible to me. I am not convinced that you really did these measurements.
    2. The input voltage should be 2Volt, In part 3 & 4 you calculate with 1 Volt, not a problem. But I have no idea how the result of question 2 can then be 2Volt.
    3. OK
    4. The shape of the graph looks OK. But the knee voltage for a standard red led is around 2.2Volt not 3.8V. Furthermore the current through the LED cannot run up to more than 400mA without 'fireworks'.  I have no idea what went wrong, sorry.
    5. OK
    6. OK. Neat schematic and temperature graph from the sensor. Good that you added calculations.

I already gave you some oral feedback on the first question of the practical assignments. You apparently take your work serious because later (after I wrote the feedback above) I received an updated version of your report. Using the right values of the resistors and showing more detailed calculations.

**Experiential prototype; the so called mini project:**

7 key music keyboard that generates sound produced by Arduino and a piezo speaker. At the same time a colored LED lights up. The idea behind this is that the colors help children to play music. When they have difficulties with reading music notes they can just remember the colors. Project really fits in ID context, and I had the impression it also fits you. You bread boarded your final circuit.  
Poster:

Musical Enlightenment is the title of your poster. It shows a hand drawn sketch of the circuit, containing an error we discussed during the presentation of you prototype. Furthermore it shows part of the Arduino code a picture and a short description. Poster looks OK.

* 02. the student's competency development
  + 2. Indicate learning activity & development of competency areas and give feedback on this.
    1. indicate type of learning activity

 assignment / module or other learning activity

* + 1. indicate development 'ideas and concepts'

 NA

* + 1. indicate development 'integrating technology'

 yes, substantially

* + 1. indicate development 'user focus and perspective'

 NA

* + 1. indicate development 'socio-cultural awareness'

 NA

* + 1. indicate development 'designing business processes'

 NA

* + 1. indicate development 'form and senses'

NA

* + 1. indicate development 'teamwork and communication'

 NA

* + 1. indicate development 'design and research processes'

 NA

* + 1. indicate development 'self-directed and continuous learning'

 NA

* + 1. indicate development 'descriptive and mathematical modelling'

 yes, substantially

 Decisions are supported by calculations

* + The assignment creative Electronics is quite mono-disciplinary: it gives you only a fair chance to score on "Integrating Technology" and "Descriptive mathematical modeling". With the Practical Assignments and the mini project you can start to explore things in practice and get back to the overall aim of designing.
* 03. process (approach)
  + 3. Indicate which activity of the (design) process the student has done and give feedback on this.
    1. envisioning / transforming society

 yes, substantially    yes, to some extent    no, although expected / intended    NA

* + 1. exploring / validating in context

 yes, substantially    yes, to some extent    no, although expected / intended    NA

* + 1. making: synthesising / concretising

 yes, substantially    yes, to some extent    no, although expected / intended    NA

* + 1. thinking: analysing / abstracting

 yes, substantially    yes, to some extent    no, although expected / intended    NA

* + Especially electronics is a good example of the engineering stage of a design process. You have to realize (build) a concept based on some calculations. For ID this will be the stage before you can start your user tests. You realized and explored some circuits to verify the behavior of electronics.
* 04. attitude
  + 4. Describe and give feedback on the student's attitude.

Marije, You are motivated and eager to learn, you take your work serious. I was impressed by how confident you already are with using a multimeter and debug your own circuit. Keep doing that! Try to get as confident with an oscilloscope and you can get far.

* 05. advice
  + 5. What advice would you like to give to the student?

Apply the new knowledge on electronics in your next projects. Try to find new challenges in this field. Realize that making design choices based on calculations is not only good practice for electronics: it can be done with any design process. If you encounter problems in your next electronic circuit, don't hesitate to use a multimeter or an oscilloscope. Before you connect the multimeter or scope try to think about what you expect to see; e.g. what is the value you expect (roughly), if the measurement gives a different result; try to explain why. It will give you insight in the circuit. Use a step by step approach to find an error; start with the power supply and test sub circuits separately. Try to explain (analyze) what you measure. Always have a schematic next to you when building or debugging electronics, and draw voltage and current arrows in this circuit to help you to understand it.

 