Tussentijds opvolgingsformulier Bachelorproef 2020-2021

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**Bachelorproef: eFuse**

**Bedrijf: Antwerp Space**

**Student: Ian Blockmans**

**Promotor: Pedro Wyns**

**Bedrijfspromotor: Donald Heyman**

**Opleiding: Embedded Electronics**

**Stageweek: 6**

**Gerealiseerd vorige week:**

* Modbus verder uitgewerkt:
  + Coils lezen werkt.
  + Coils schrijven wekt.
* Foute condensator vervangen op pcb.
* Digitale kant beter besproken:
  + Temperatuur meten met NTC, i2c, 1wire sensor op een draad.
* Donald Heyman heeft gesproken met de mensen die de eFuse gaan gebruiken en geedback gekregen:
  + Input (+add label From Power Supply) and output connectors (+ add label to Device Under Test) not clear (put on horizontal line to make more clear the in -->  out flow)
  + Use more than one ground connection symbol  to make the schematic more readable, for example the input filter (C1,C2,D2)
  + Try to group better according to function
  + Can we use the same type of MOSFET? Explain why 2 different. What is their function.
  + U9, U10, U11: Function? Can this be done with ADC? -> I assume the idea is that LCL class can also be set manually (jumper missing for 'hard' setting of LCL class?)
  + Can U9,U10, U11 be replaced by digital resistor or DAC output. Or is this for use with a jumper
  + Add more text or group function blocks. E.g. "LCL class selection"
  + R15 > 620 ??? What value?
  + Important5V Net used tied to 3.3V net? No 5V available for relays.
  + Add NM if not mounted. (0R resistor in current measure path)

**Functions:**

* + 4 units 'possible' in one 19" 1U box with one controller is the goal!

This will be the use case for Transponder project (dual redundant power supply with dual input 4 x 28V)

**Future/ optional** Improvement. Ethernet connection + external power supply -> microcontroller with LAN + USB

**3D model:**

* + Consider the use of screw terminal block instead of crimp terminal (to banana plugs)
  + Important Add label IN / OUT for the supply connections!
  + Important More clearance for the grounded mounting holes. A screw/washer will touch the + terminal (3d model)
  + (optional) Add terminal block to use an external power supply (use case no digital board connected)
  + Use headers for external LED to include in the front panel of the 19" enclosure

**Other comments**

* + Use USB galvanic isolation instead of all opto-coupler -> IMO not a good idea -> would lose the option of having the board connected to something else (PLC, daq unit, …)
  + How to integrate the screen.
    1. Can it be optional? Keep it in software as something that can be optional there (compiler flag?)
    2. Is a "front" plexi-window needed.
    3. Does the screen fit in 1U high unit?

**Doelstellingen voor de volgende week:**

* Modbus verder uitwerken
* Tabel maken welke coils overeen komen met welke functies.
* Beginnen in python en labview.
* Bestellingen doen

**Opmerkingen bedrijfspromotor:**

**Opmerkingen hogeschoolpromotor:**