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E344 Assignment 5

Willem Viljoen
22877169

Report submitted in partial fulfilment of the requirements of the module Design (E) 344 for the degree Baccalaureus in Engineering in the Department of Electrical and Electronic Engineering at Stellenbosch University.

September 9, 2021

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5. Ek verklaar dat die werk in hierdie skryfstuk vervat, behalwe waar anders aangedui, my eie oorspronklike werk is en dat ek dit nie vantevore in die geheel of gedeeltelik ingehandig het vir bepunting in hierdie module/werkstuk of 'n ander module/werkstuk nie.
   I declare that the work contained in this assignment, except where otherwise stated, is my original work and that I have not previously (in its entirety or in part) submitted it for grading in this module/assignment or another module/assignment.

22877169 Studentenommer / *Student number*	 Handtekening / *Signature*
W. Viljoen Voorletters en van / *Initials and surname*	September 9, 2021 Datum / *Date*

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Nomenclature

Variables and functions

$p(x)$	Probability density function with respect to variable x.
$P(A)$	Probability of event A occurring.
ε	The Bayes error.
ε_u	The Bhattacharyya bound.
B	The Bhattacharyya distance.
s	An HMM state. A subscript is used to refer to a particular state, e.g. s_i refers to the i^{th} state of an HMM.
$\mathbf{S}$	A set of HMM states.

Acronyms and abbreviations

AE	Afrikaans English
AID	accent identification
ASR	automatic speech recognition
AST	African Speech Technology
CE	Cape Flats English
DCD	dialect-context-dependent
DNN	deep neural network
G2P	grapheme-to-phoneme

Chapter 1

Literature

1.1. Battery Pack

Type something here...

1.2. Solar Module

Type something here...

1.3. Fuse Protection

Type something here...

Chapter 2

System Design

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Chapter 3

Detail Design

3.1. Voltage Regulation

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Type something here...

3.2. High Side Switch on Supply Side

Type something here...

Type something here...

3.3. Overcurrent Protection

Type something here...

3.4. Undervoltage Protection

Type something here...

Type something here...

3.5. Current Sense

Type something here...

Type something here...

3.6. Low-side Switch

Type something here...

Chapter 4

Subsystem results (simulated and measured)

4.1. Voltage Regulation

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Type something here...

4.2. High Side Switch on Supply Side

Type something here...

Type something here...

4.3. Undervoltage Protection

Type something here...

Type something here...

4.4. Current Sense

Type something here...

Type something here...

4.5. Low-side Switch

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Chapter 5

System Practical Model

5.1. Model Build

Type something here...

5.2. Practical Results

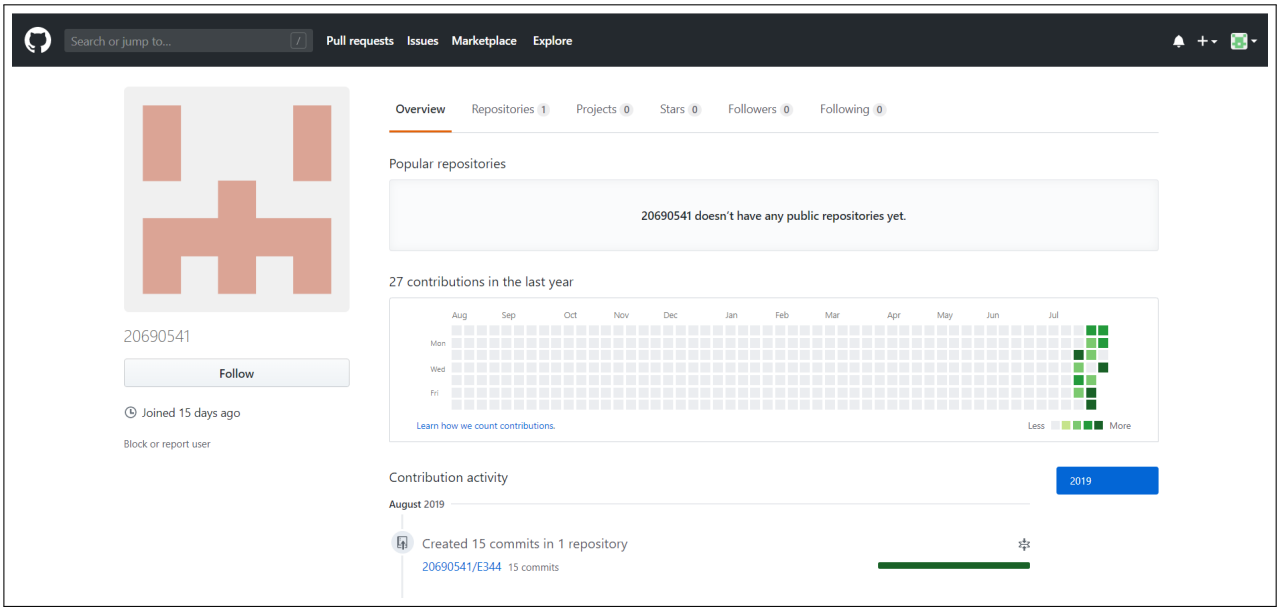
Type something here...

Bibliography

Appendix A

GitHub Activity Heatmap

Take a screenshot of your github version control activity heatmap and insert here.



Appendix B

Social contract

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E-design 344 Social Contract

2021

The purpose of this document is to establish commitment between the student and the organisers of E344. Beyond the commitment made here, it is not binding.

In the months preceeding the term, the lecturer (Thinus Booysen) and the Teaching Assistant (Kurt Coetzer) spent countless hours to prepare for E344 to ensure that you get your money's worth and that you are enabled to learn from the module and demonstrate and be assessed on your skills. We commit to prepare the assignments, to set the tests and assessments fairly, to be reasonably available, and to provide feedback and support as best and fast we can. We will work hard to give you the best opportunity to learn from and pass analogue electronic design E344.

I, ... Willem Viljoen ..... have registered for E344 of my own volition with the intention to learn of and be assessed on the principals of analogue electronic design. Despite the potential publication online of supplementary videos on specific topics, I acknowledge that I am expected to attend the scheduled lectures to make the most of these appointments and learning opportunities. Moreover, I realise I am expected to spend the additional requisite number of hours on E344 as specified in the yearbook.

I acknowledge that E344 is an important part of my journey to becoming a professional engineer, and that my conduct should be reflective thereof. This includes doing and submitting my own work, working hard, starting on time, and assimilating as much information as possible. It also includes showing respect towards the University's equipment, staff, and their time.

Prof. MJ Booysen

Signature: ..... Digitally signed by MJ BOOYSEN Date: 2021.08.04 22:12:45 +02'00'

Date: ..... 4 Aug 2021

Student number: ..... 22877169 .....

Signature: .....

Date: ..... 16 Aug 2021 .....

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