Ellen Wang

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Technical Skills

Hardware: Power Electronics, PCB Design, Board Bringup
Tools: Arduino UNO, Altium Designer, LTspice, KiCad, Cadence Virtuoso, PSIM
Equipment: Multimeter, Oscilloscope, Power Supply, Soldering
Languages: C, C++, Python, Java

Experience

HUAWEI Technologies Canada January 2022 - Present
Analog Design Intern *Kanata, ON*

- Simulated PLL systems for Serializer/Deserializer applications
- Created test benches in **Cadence Virtuoso** for circuit verification
- Conducted pre and post layout simulations for a proprietary frequency divider

Waterloop Student Design Team September 2021 - Present
Motor Control Subteam Lead *Waterloo, ON*

- Leading a team of 13 members to develop a motor controller that can support a full-scale prototype Hyperpod
- Used **Altium Designer** to develop 3 different revisions of a 3-phase induction motor controller PCB, which includes power MOSFETs, gate driver(s) and current, voltage and temperature monitoring.
- Soldered the motor control boards and tested using oscilloscopes and a multi-meter to check proper functionality

Energy+ Inc. May 2021 - August 2021
Engineering and Metering Co-op Intern *Cambridge, ON*

- Automated a capacity evaluation process using Excel for distribution substations which led to a significant decrease in response times for distributed generation applications
- Reviewed telecommunication joint-use permits and coordinated with their planners
- Conducted site visits to residential and rural areas to determine hydro pole conductor and transformer sizes

Projects

Social Distancing Trick-or-Treat | *C++, Arduino UNO*

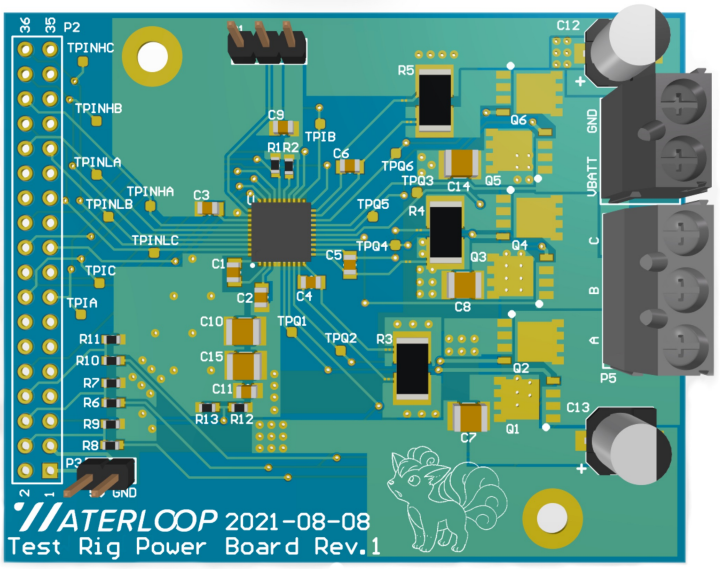
- Engineered an automatic candy dispenser to maintain social-distancing during the holiday
- Programmed an **Arduino UNO** controlling a stepper motor and driver for an automatic dispense system based on an ultrasonic response feedback
- Simulated a computational physics model of the ultrasonic waveform propagation for distance sensing, optimized for millisecond response time
- Soldered segments of the circuit to integrate all of the components together

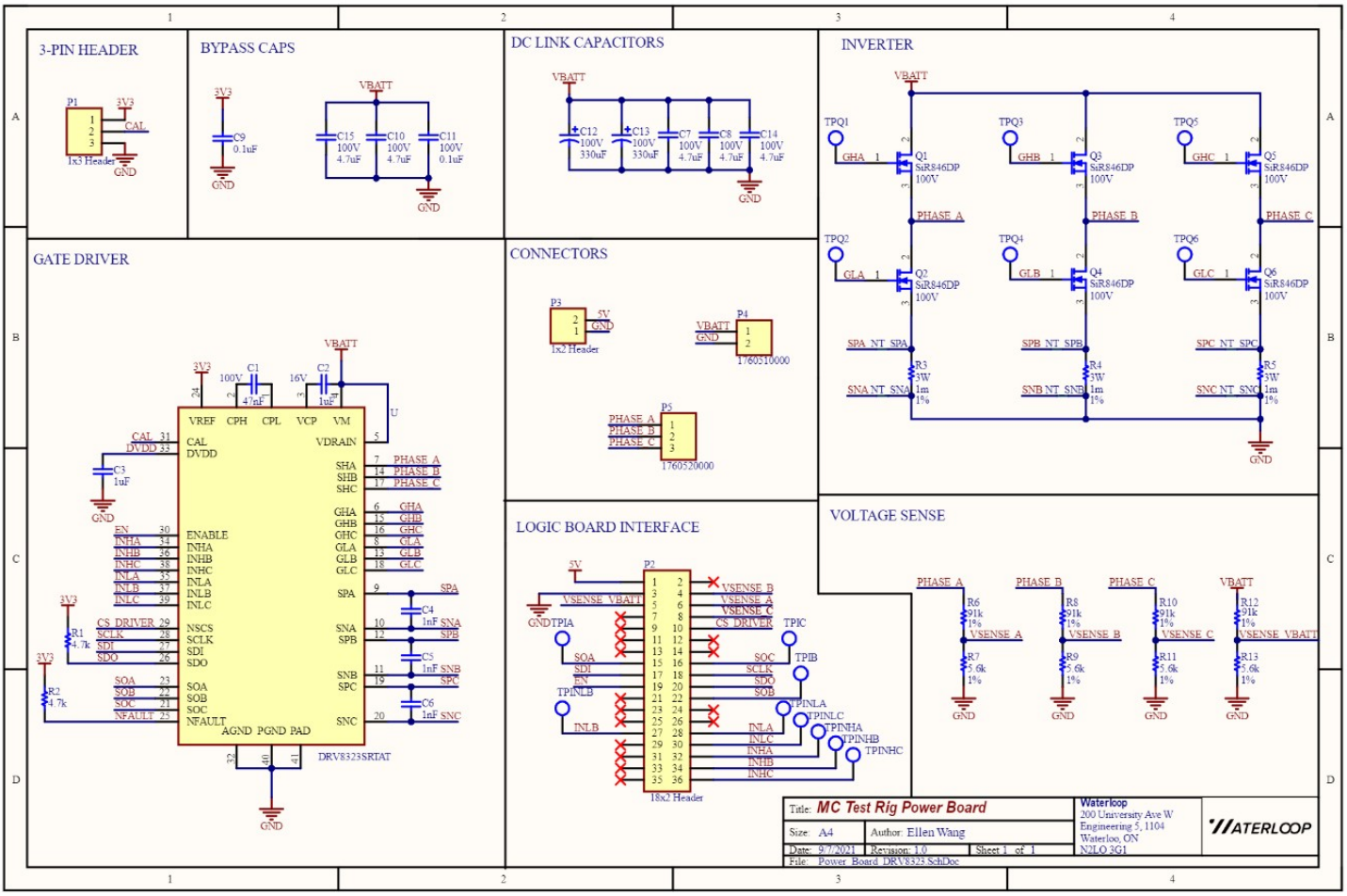
Motion Sensor Light | *Altium Designer*

- Created a motion sensor activated light that detects activity within a 7 meter radius
- Developed a prototype circuit using a breadboard and PIR sensor module
- Designed a schematic and layout in **Altium Designer**

Education

University of Waterloo September 2020 - April 2025
BASc in Electrical Engineering, Candidate *Waterloo, ON*


WATERLOOP 2021-08-08
Test Rig Power Board Rev.1


3-PIN HEADER
BYPASS CAPS
DC LINK CAPACITORS
INVERTER
GATE DRIVER
CONNECTORS
LOGIC BOARD INTERFACE
VOLTAGE SENSE
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Size: A4
Author: Ellen Wang
Date: 9/7/2021
Revision: 1.0
Sheet 1 of 1
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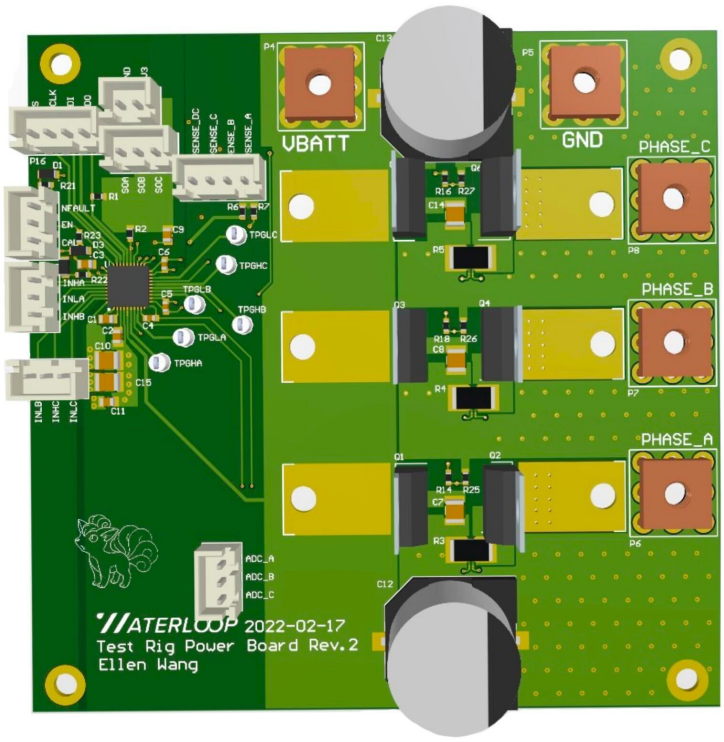
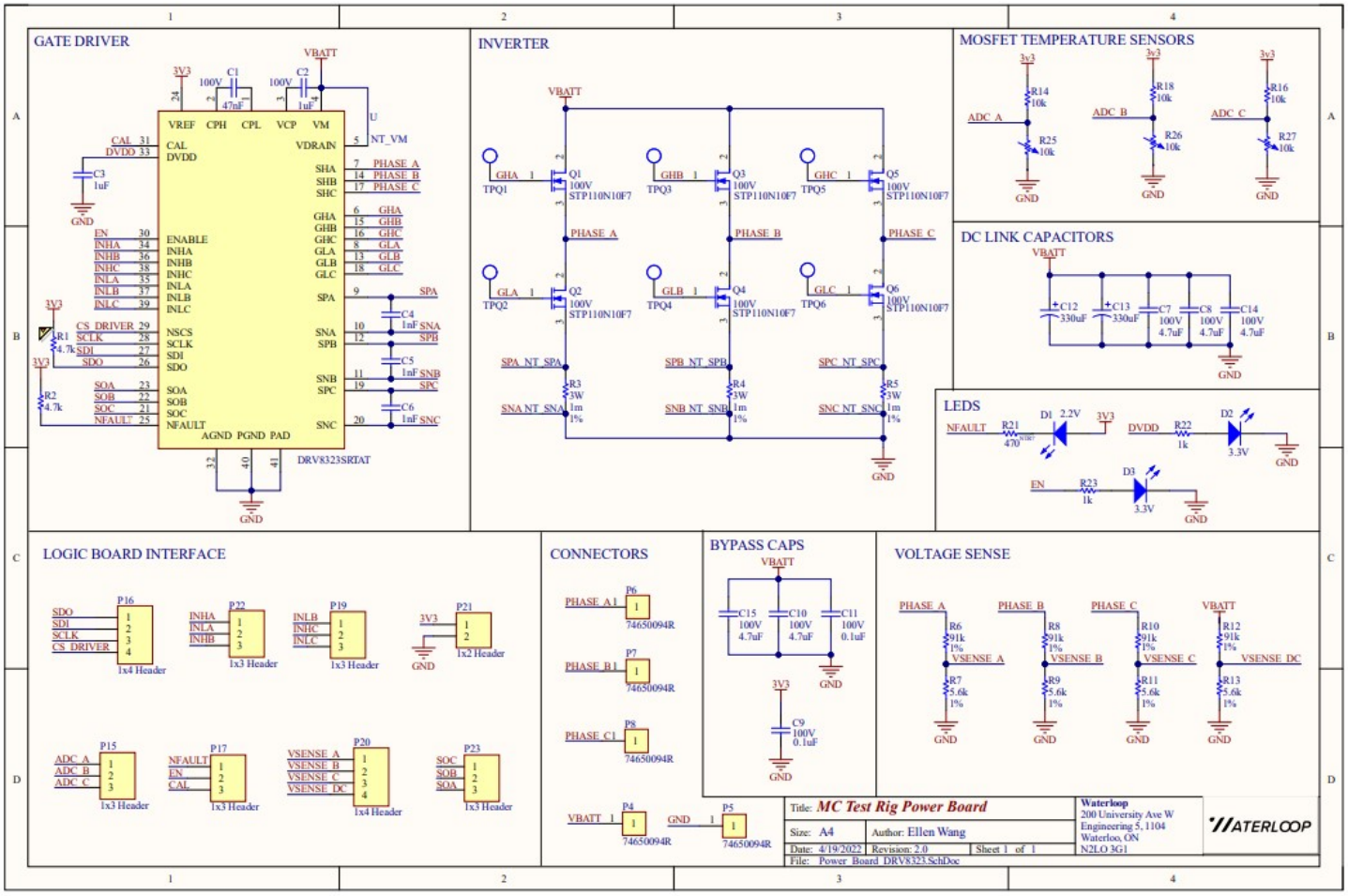
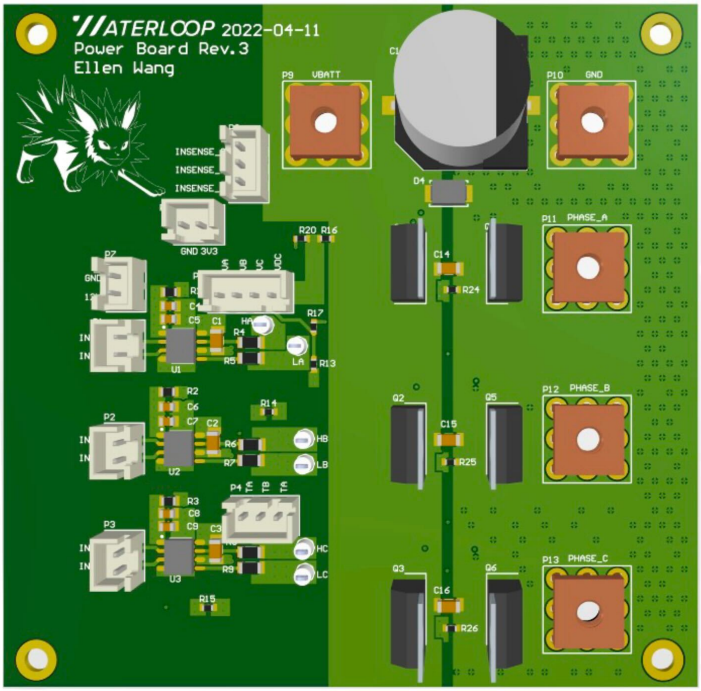
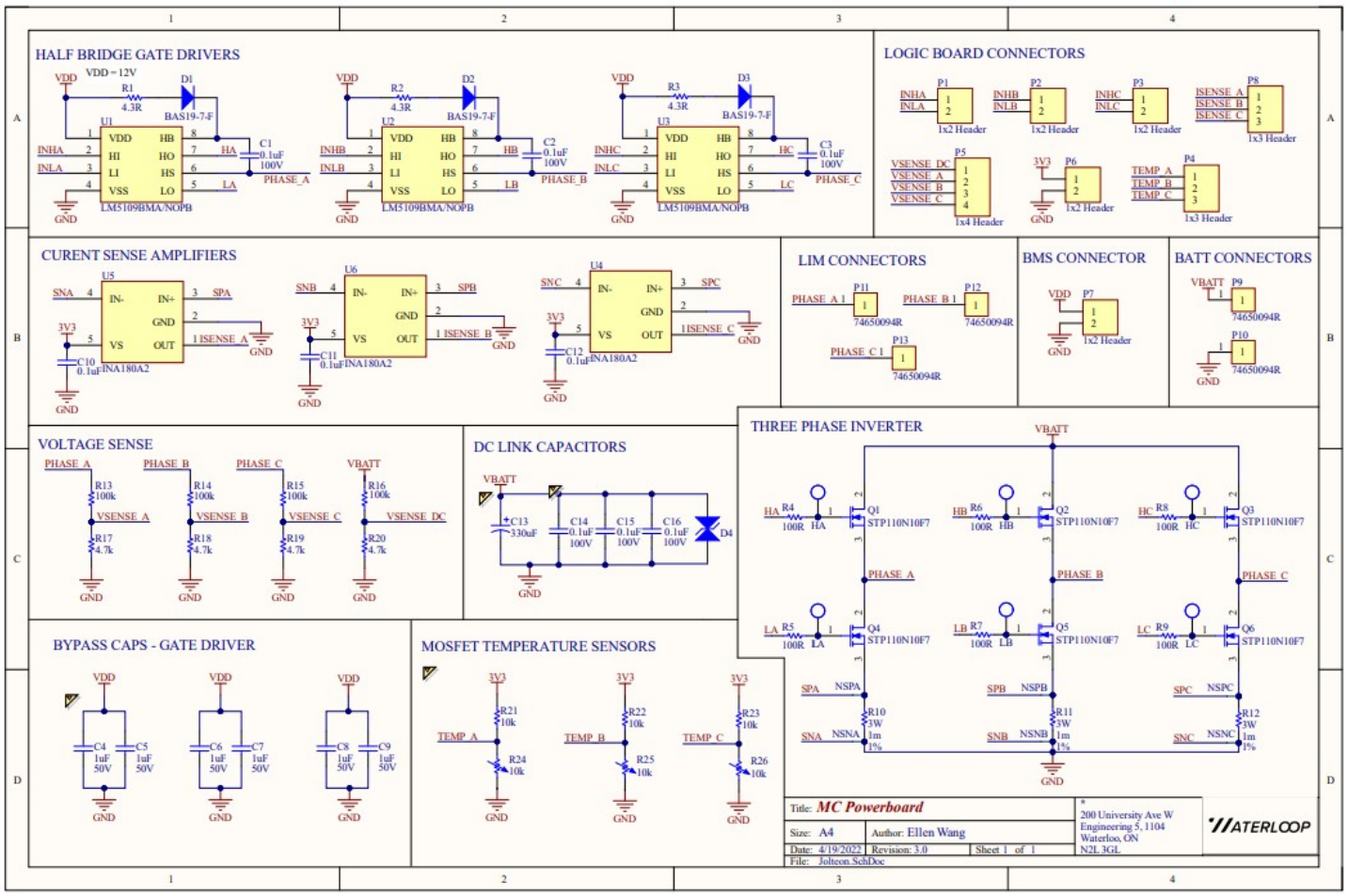
Waterloop
200 University Ave W
Engineering 5, 1104
Waterloo, ON
N2L0 3G1


VBATT
GND
PHASE_C
PHASE_B
PHASE_A
ADC_A
ADC_B
ADC_C
WATERLOOP 2022-02-17
Test Rig Power Board Rev.2
Ellen Wang


GATE DRIVER
INVERTER
MOSFET TEMPERATURE SENSORS
DC LINK CAPACITORS
LEDS
LOGIC BOARD INTERFACE
CONNECTORS
BYPASS CAPS
VOLTAGE SENSE
DRV8323SRTAT
Title: MC Test Rig Power Board
Size: A4
Author: Ellen Wang
Date: 4/19/2022
Revision: 2.0
Sheet 1 of 1
File: Power_Board_DRV8323.SchDoc
Waterloop
200 University Ave W
Engineering 5, 1104
Waterloo, ON
N2LO 3G1


WATERLOOP 2022-04-11
Power Board Rev.3
Ellen Wang
P9 VBATT
P10 GND
P11 PHASE_A
P12 PHASE_B
P13 PHASE_C


HALF BRIDGE GATE DRIVERS
LOGIC BOARD CONNECTORS
CURENT SENSE AMPLIFIERS
LIM CONNECTORS
BMS CONNECTOR
BATT CONNECTORS
VOLTAGE SENSE
DC LINK CAPACITORS
THREE PHASE INVERTER
BYPASS CAPS - GATE DRIVER
MOSFET TEMPERATURE SENSORS
LM5109BMA/NOPB
INA180A2
STP110N10F7
Title: MC Powerboard
Size: A4
Author: Ellen Wang
Date: 4/19/2022
Revision: 3.0
Sheet 1 of 1
File: Jolteon.SchDoc
200 University Ave W
Engineering 5, 1104
Waterloo, ON
N2L 3G1