Michael Bot

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Experience

Oto Inc - Electronics Product Designer *Nov 2019 - present*

- Designing electronics for a solar powered, connected lawn sprinkler that will smartly water and apply solutions with minimal water waste.
- Focus on circuit design, PCB design (Altium), firmware (C), and software (Python).
- Designed for sleep current of <100uA but can deliver almost 10W of motor power
- Notable circuits include motor drivers, solar panel charging, multiple voltage buses (switch-mode), and micro-volt sensor amplifiers for a piezo pressure sensor.
- Hand assembling/soldering prototypes for faster turn-time and testing.
- Designed all circuits, PCB layouts, and cables. Contributor to firmware and software.
- Shipped 60 units In October 2020 and plan on shipping thousands in 2021.

Spectrum Manufacturing Inc - Electronic Design Engineer *July 2018 - Nov 2019*

- Designing electronics for highly accurate LED lighting products used in movie production.
- Electronics design including circuits/ schematics, parts selection, PCB layout, high speed digital, analog, and EMC.
- Implementing efficient manufacturing practices by creating purpose-built hardware and software tools to be used by the assembly staff.
- Diagnosing problems with electronics that come up during manufacturing.
- Personal project using PDLC film (controllable diffusion) to vary the beam angle of our fixtures. Uses a mix of analog and microcontroller control.
- Personal project of setting up a PCB CNC mill for the R&D team. Turned our 5 day PCB lead time into a few hours for simple designs in FR4 or aluminum.
- Creating procedures for electronic testing and design to be used by the R&D team. Keeping the electronics design consistent by creating Altium templates and proper reviewing procedures.

Nix Sensor Ltd - Lead Engineer *April 2015 - June 2018*

- Led an 8 person team responsible for the design, testing, and production of wireless, portable colour sensors. Managed all aspects of hardware and firmware.
- Designed electronics, calibration algorithms, and calibration machines for the Nix Mini and the Nix Pro 2. This involved many physical prototypes, hand-assembled PCBs, and firmware. Focus was on size, low power (30uA), and design for assembly.
- Created the in-house assembly line for the Nix Pro and Nix Mini colour sensor. Optimized it over time to adapt to increasing sales and new assembly equipment. Oversaw in-house assembly (thousands of sensors per month).
- Helped over 20,000 people measure the color of walls, leather, egg yolks, and more.

Flextronics - Electronic Design Intern *May 2013 - May 2014*

- Prototyped and tested early versions of consumer electronics. Major projects included the Google Chromecast, a Google BLE tag, and a connected speaker for Beats.

The McMaster Solar Car Project *2010 – 2014*

- Managed an electrical team of about 10 members (2012-2014).
- Designed electronic car components and led technical tutorials for new members.

Education

McMaster University - Bachelors of Electrical Engineering *2010 - 2015*

Technical Skills

- **Circuit/ and Analysis** - Ten years of making electronics in both enthusiast and professional settings. Designs with a large focus on manufacturability, in small or large scale operations.
- **PCB Design -** Designing complex PCBs with impedance controlled tracks for USB high speed. Using Altium or EagleCAD for schematic and PCB capture.
- **Measurement -** Knowing which tools to use for situations such as extreme low power, high power, signal integrity, color, light, and basic RF measurements.
- **Prototyping -** Making functional prototypes with electronics, firmware and software.
- **Embedded C -** Mostly 32 bit ARM controllers, some RTOS. Using git repositories to track code changes (Bitbucket and GitHub).
- **Matlab/Python -** Data analysis scripts, 3D curve fitting, sensor calibration algorithms.
- **C#/Python -** GUI programs to run hardware tests and perform assembly automation.
- **Project Management** - Have used a variety of task management softwares, including Jira, Trello, Wrike, and Asana.