Stephen J. Wenner
Tezla LLC

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Electrical engineering expert with over 35 years of proficiency in wireless, analog, power, embedded, and high-speed designs. Extensive RF designs involving WiFi, Cellular, LoRaWAN, and BLE technologies. Proven track record of successful product development for all sectors: military, automotive, industrial, and commercial industries. Owner of Tezla LLC, a successful engineering design firm. See link to see and hear about me and my company, youtube video.

Core Competencies

Wireless design, Analog / Digital design, Power design, PCB layout, Embedded Firmware, Excellent troubleshooting skills

Work History:

Tezla LLC, Warriors Mark, PA
Owner / Engineer   **Mar 2018 – Current**
Projects that I have designed:
- Vision scanner for amblyopia detection with RPi3, Xilinx Artix7, DDR3 RAM.
- AC-DC 800W Compressor driver for humidifiers.
- LoRaWAN water valve control sensor using STM32WLE5.
- BLE product for solar panel swimming pool heaters using STM32WB55.
- Silicon photo-multiplier sensors for measuring water fecal contaminants in third world countries
  - LTE-Cat1 Cellular (Blues NOTE-NBNA-500) and STM32L476
  - Wi-Fi (Particle ARGN-H)
- 100A motor drive with LCD, GPS, and SD card for fiber optic cable dispensing using MSP430.
- Carbon dioxide soil monitoring for carbon credits using capacitive moisture sensor using MSP430.
- BLE actuator for smart doorstop using STM32WB55.
- 120VAC monitoring system for furnace fans using MSP430.
- BLE comfort blanket with haptics using STM32WB55.
- Pet claw clippers with IR sensing using MSP430 / flex PCB / USB-C Power Delivery.
- Artificial blue lighting for early horse estrus production using MSP430.
- Proprietary wireless pump servo controller using self-created network with LPRS LoRa / MSP430.
- Proprietary wireless high-power LED controller using self-created network with LPRS LoRa / MSP430.
- High gain amplifier conditioning circuit for extreme low level signal monitoring (2uA).
- Audio Pre-Amp / Amp for voice using discrete components (op-amps, transistors) and LTSpice.
- Electronic flight controls for Army Blackhawk pneumatic trim tab system using MSP430.
- Proprietary wireless HUB acceleration monitoring on industrial robots using Nordic NRF-24L01+.
- Proprietary wireless single board accel solution using Nordic NRF24L01+ / MSP430.
- Intelligent battery charger for Li-Ion batteries using MSP430.

Pennsylvania State University, ARL, State College, PA
Engineering Designer   **Apr 2018 – Dec 2018**
- Responsible for Altium PCB Layouts / Design for classified government programs.

KCF Technologies, State College, PA
Minority Owner/Manager of Electrical / Firmware Engineering   **Apr 2009 – Jan 2018**
Responsible for all electrical engineering design work including
- Pioneered a proprietary wireless star network using Nordic nRF24L01 and ISM 2.4GHz.

- Built $15M sales as lead electrical engineer on all product development.

Pennsylvania State University, State College, PA
Sr. Research Associate   **May 2008 – Apr 2009**
- Real time video sampling, simulation and development using bilinear algorithms in Matlab and FPGA.
- Development of microcontroller code for PIC16F applications.

RTD Embedded Technologies, State College, PA
Sr. Analog Electrical Engineer   **Apr 2004 – Mar 2008**
- Designed FPGA code for: PCI Bridge, ISA, SPI, I2C, analog data manipulation, scanning and filtering.
- Developed SmartCal Data Module line using TMS2812 DSP to autonomously calibrate and adjust error.
- Developed and responsible for all analog front-end products.

Paradise Datacom, Boalsburg, PA
Sr. Electrical Engineer   **Aug 2003 – Mar 2004**
- Responsible for VSAT Terminal System level design; included Block Up Converters, Modems, LNBs, Power Sources, Redundant Controllers, Modems as well as product field integration.

Self Employed   **Jun 2003 – Sept 2003**
- Developed electrical test procedure for the cruise missile Acceptance / Qualification test plan.

Preschutti & Associates, State College, PA
Sr. Member of the Technical Staff   **Aug 2001 – Jun 2003**
- Independently managed and developed solutions for FPGA serial communication interfaces.
- Hardware development for: PCS Angle of Arrival System; infrared to AM modulation schemes; mixed signal transducer modules for the cruise missile.
- Created Acceptance / Qualification test plans for trident and cruise missile programs for: destructive radio units, PCM encoders; destruct initiation units.

Videon-Central, State College, PA
Sr. Electrical Engineer   **Feb 2000 – Jun 2001**
- Created inflight MPEG encoder / decoder products including all hardware and FPGA development.

Krautkramer Branson, Lewistown, PA
Sr. Electrical Engineer   **Mar 1998 – Feb 2000**
- In charge of development on all first generation ultrasonic phased array products.

Wintron Inc., Bellefonte, PA
Lead Research Engineer   **Jun 1995 – Mar 1998**
- Organized new development of high voltage power supply and deflection yoke designs for high resolution monochrome heads up displays

Publications / Patents

U.S. Patent #8793081 **Internal structural monitoring system**
U.S. Patent #9106160 **Monolithic energy harvesting system, apparatus and method**
U.S. Patent #9271170 **Channel adaptation in sensor networks**
U.S. Patent #9322692 **Flow sensor including a tube extending from a housing and static …**
U.S. Patent #9419331 **Flexible antenna with weatherproof protection system and method of weather**
COTS: The Journal of Military Electronics and Computing **Drifts and Calibration: Fine Tuning Data Acquisition**
MSEE Thesis: **High Frequency Propagation Model Prediction, Analysis and Validation as Correlated to an Auroral Circuit**

Education

MSEE Aug 94 – Jul 95   Pennsylvania State University
BSEE Aug 86 – Dec 90   Pennsylvania State University
ASET Aug 84 – May 86   Williamsport Area Community College

Technical Skills

Altium Software, Embedded C, Wireless Networks, Ubuntu Linux, PostgreSQL, MQTT, LTSpice, Microcontrollers (PIC, ARM, MSP), STM32CubeIDE, Code Composer Studio, Visual Basic