



EXPONENTIAL ENGINEERING

CAPABILITIES

- **ELECTRICAL**
 - NETWORK-SUBSYSTEM-COMPONENT ARCHITECTURE-DESIGN-IMPLEMENTATION (mV-kV , μ A-kA , mHz-Ghz)
- **ELECTROMECHANICAL**
 - CUSTOM PCB DESIGN-PRODUCTION-ASSEMBLY
 - STANDARD PCB DESIGN-PRODUCTION-ASSEMBLY (EXPONENTIAL PRE-DESIGNED OR STANDARD LAYOUT)
- **MECHANICAL**
 - ASSEMBLY-COMPONENT-FASTENER DESIGN-PRODUCTION-ASSEMBLY
 - MANUFACTURING
 - 3D ADDITIVE
 - ◆ FUSED FILAMENT FABRICATION (RUBBER, PLASTIC)
 - 2D SUBTRACTIVE
 - ◆ LASER CUTTING/ETCHING (WOOD, ACRYLIC, POLYCARBONATE)
- **LOGICAL LINGUISTICS**
 - FIRMWARE-SOFTWARE ARCHITECTURE-DESIGN-IMPLEMENTATION-OPTIMIZATION
 - ALGORITHM AUTHORIZING
 - SYNTACTIC CODE AUTHORIZING
 - Python, IEC-61131-3, SQL, HTML, CSS, Javascript
 - C, C++, Lisp
 - Assembly
 - HDL'S

Ask us a question

COMPLETED PROJECTS

PROJECT NAME

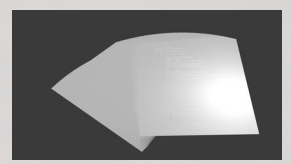
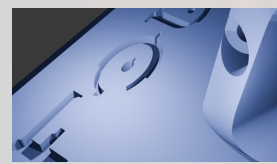
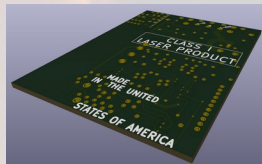
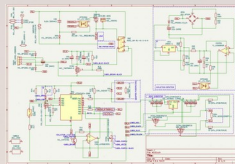
DEPICTION OF ELECTRICAL

DEPICTION OF ELECTROMECHANICAL

DEPICTION OF MECHANICAL OF PRODUCT

DEPICTION OF LETTER SIZE
TABLETS IN WHICH ENTIRETY
OF OPERATIONAL CODE IS
ENGRAVED AT 12 POINT FONT
SIZE AND HALF INCH MARGINS

**WL02
“FOUNDER’S
EDITION”**

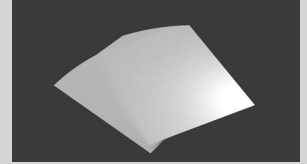
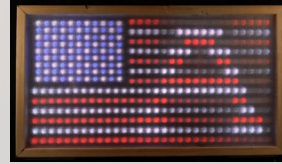


A REFINED PRODUCT INNOVATING UPON A HOUSEHOLD DEVICE USED EVERYDAY
MARKET STATUS – PRIVATE SALE ONLY

- **ELECTRICAL**
 - ~100 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 170VDC, 120VACRMS, 5VDC(1), 5VDC(2), 3V3DC
 - SIGNALS AND SIGNALING SYSTEMS
 - I2C
 - UART
 - PWM
 - ANALOG PROCESSED
 - DIGITAL PROCESSED, MICROSECOND RESOLUTION
 - COMPUTE SUBSYSTEM : 8-BIT PROCESSOR
- **ELECTROMECHANICAL**
 - 2 CUSTOM PCB'S (DESIGN AND ASSEMBLY IN-HOUSE, PRODUCTION OUTSOURCED)

- MECHANICAL
 - ~10 COMPONENTS INCLUDING ADDITIVE 3D AND SUBTRACTIVE 2D COMPONENTS (DESIGN AND PRODUCTION IN-HOUSE)
- LINGUISTIC
 - 2237 LINES OF CODE (C, Assembly)
 - REAL-TIME DIGITAL SIGNAL PROCESSING (DSP)
 - AUTOMATED TIMER CALIBRATION
 - ELEGANT OPERATOR INPUT AND FEEDBACK
 - ENGINEER DEBUG FEEDBACK VIA UART

FL01

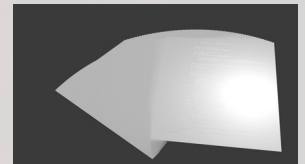


A REFINED PRODUCT IN A CUSTOM PIXEL ART DISPLAY OF THE U.S.A. FLAG WITH CUSTOM-CODED ANIMATION OF VERY HIGH CODE OPTIMIZATION

MARKET STATUS – PUBLICLY AVAILABLE

- ELECTRICAL
 - ~500 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 120VACRMS, 5VDC
 - SIGNALS AND SIGNALING SYSTEMS
 - SPI
 - COMPUTE SUBSYSTEM : 8-BIT PROCESSOR
- ELECTROMECHANICAL
 - 1 STANDARD PCB (DESIGN, PRODUCTION AND ASSEMBLY IN-HOUSE)
- MECHANICAL
 - 3 PRIMARY COMPONENTS INCLUDING A 3.0*1.5' WOODEN FRAME (DESIGN AND PRODUCTION IN-HOUSE)
- LINGUISTIC
 - 1164 LINES OF CODE (C, Assembly)
 - HIGHLY OPTIMIZED JUST-IN-TIME (JIT) ANIMATION RENDERING *WITHOUT* FRAME BUFFER

CATBOX



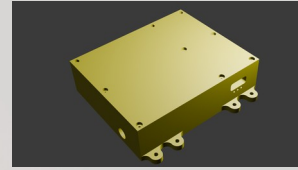
EXPONENTIAL'S FIRST LARGE PROJECT - A SIMPLE SECURITY AND HOME AUTOMATION SYSTEM

MARKET STATUS – NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY

- IO
 - 16*2 CHARACTER DISPLAY
 - RGB INDICATOR LIGHT
 - WHITE INDICATOR LIGHT
 - TWO MOTION DETECTORS
 - ONE CUSTOM BUILT TOUCH BUTTON
 - ONE MECHANICAL BUTTON
 - THREE LINE AND NEUTRAL 120VAC RELAY CONTROLLED OUTLETS
 - TEMPERATURE
 - 8 BIT AUDIO OUT (AMPLIFIED,SPEAKER TRANSDUCED)
 - 8 BIT AUDIO IN (PREAMPLIFIED,MICROPHONE TRANSDUCED)
- ELECTRICAL
 - ~40 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 5VDC, 24VDC
 - SIGNALS AND SIGNALING SYSTEMS
 - I2C
 - ANALOG PROCESSED
 - DIGITAL PROCESSED
 - COMPUTE SUBSYSTEM : 8-BIT PROCESSOR
- ELECTROMECHANICAL
 - 1 STANDARD PROTOBOARD (ASSEMBLY IN-HOUSE)
- MECHANICAL
 - 1 PREFABRICATED ENCLOSURE

- LINGUISTIC
 - 2746 LINES OF CODE (C, Assembly)
 - AUDIO DIGITAL SIGNAL PROCESSING (DSP)
 - OPERATOR MODE SELECTION AND 16*2 CHARACTER FEEDBACK

RS485AIR



AN RS485 POINT-TO-POINT WIRELESS ADAPTER

MARKET STATUS – NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY

- ELECTRICAL
 - ~20 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 5VDC, 3V3DC
 - SIGNALS AND SIGNALING SYSTEMS
 - LoRa
 - RS485
 - COMPUTE SUBSYSTEM : 32-BIT PROCESSOR
- ELECTROMECHANICAL
 - 2 PCB'S (1 STANDARD DESIGN, PRODUCTION AND ASSEMBLY IN-HOUSE, 1 CUSTOM DESIGN, PRODUCTION AND ASSEMBLY OUTSOURCED)
- MECHANICAL
 - 1 WATER RESISTANT (INCLUDES IN-HOUSE DESIGNED AND MANUFACTURED RUBBER GASKETS) ENCLOSURE PER POINT (DESIGN, PRODUCTION AND ASSEMBLY IN-HOUSE)
- LINGUISTIC
 - SERIAL TERMINAL PROGRAMMING OF OUTSOURCED SYSTEM OF PCB

KILLSWITCHER

A HARDWARE WATCHDOG (IF DOES NOT RECEIVE A PERIODIC SIGNAL, REMOVES AND REAPPLIES POWER)

MARKET STATUS – NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY

- ELECTRICAL
 - ~20 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 5VDC
 - SIGNALS AND SIGNALING SYSTEMS
 - DIGITAL PROCESSED
 - NO COMPUTE INFRASTRUCTURE
- ELECTROMECHANICAL
 - 1 PROTOBOARD (ASSEMBLY IN-HOUSE)
- MECHANICAL
 - 1 PREFABRICATED ENCLOSURE
- LINGUISTIC
 - NULL

USBKEY

A HARDWARE KEY FOR SOFTWARE, STORES AN ENCRYPTED KEY IN PROGRAM MEMORY

MARKET STATUS – NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY

- ELECTRICAL
 - DESIGN OUTSOURCED
 - COMPUTE SUBSYSTEM : 32-BIT PROCESSOR
- ELECTROMECHANICAL
 - 1 CUSTOM (DESIGN, PRODUCTION AND ASSEMBLY OUTSOURCED)
- MECHANICAL
 - NULL
- LINGUISTIC
 - 191 LINES OF CODE (C,C++)
 - VIA SERIAL COMMUNICATION LISTENS FOR KEYWORDS AND RESPONDS WITH ENCRYPTED MESSAGES

PWM ENGINE

A PHASE, WIDTH AND FREQUENCY ADJUSTABLE OSCILLATOR WITH A RESISTOR AND TRANSISTOR FLIP-FLOP GATE CORE BUILT ONLY OF FUNDAMENTAL COMPONENTS

MARKET STATUS – *NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY*

- ELECTRICAL
 - ~50 COMPONENTS (DESIGN IN-HOUSE)
 - SUBSYSTEM POWER VOLTAGES
 - 5VDC
 - SIGNALS AND SIGNALING SYSTEMS
 - ANALOG PROCESSED
 - DIGITAL PROCESSED
 - NO COMPUTE INFRASTRUCTURE – ANALOG COMPONENTS ONLY
- ELECTROMECHANICAL
 - 1 PROTOBOARD (ASSEMBLY IN-HOUSE)
- MECHANICAL
 - NULL
- LINGUISTIC
 - NULL

LESSER CREATIONS

MARKET STATUS – *NOT AVAILABLE, INTERNAL INFRASTRUCTURE ONLY*

LOUDLAMP

A REFUTATION OF SUBPAR QUALITY BLUETOOTH SPEAKERS, BUILT OF A HANDTRUCK AND REQUIRES 120VAC POWER

WL01

A GIFT

DLITE

A GIFT

SPEAKERSUIT

A HALLOWEEN COSTUME

MISCELLANEOUS

NUMEROUS

[Ask us a question](#)

PROJECTS EN ROUTE

WL03

A FURTHER REFINED PRODUCT INNOVATING UPON A HOUSEHOLD DEVICE USED EVERYDAY

MARKET STATUS – TO BE PUBLICLY AVAILABLE

- ELECTRICAL
 - ~80 COMPONENTS (DESIGN IN-HOUSE)
 - COMPUTE SUBSYSTEM : 8-BIT PROCESSOR
- ELECTROMECHANICAL
 - 2 CUSTOM PCB'S (DESIGN AND ASSEMBLY IN-HOUSE, PRODUCTION OUTSOURCED)
- MECHANICAL
 - ~8 COMPONENTS INCLUDING ADDITIVE 3D AND SUBTRACTIVE 2D COMPONENTS (DESIGN AND PRODUCTION IN-HOUSE)
- LINGUISTIC
 - ~2000 LINES OF CODE (C, Assembly)

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A MUSIC EQUIPMENT COMPONENT

MARKET STATUS – TO BE PUBLICLY AVAILABLE

- ELECTRICAL
 - DESIGN IN-HOUSE
- ELECTROMECHANICAL
 - DESIGN IN-HOUSE
- MECHANICAL
 - DESIGN, PRODUCTION AND ASSEMBLY IN-HOUSE
- LINGUISTIC
 - AUTHORING IN-HOUSE

SALPHA

A FLEXIBLE AUTOMATION EMPOWERING PLATFORM

MARKET STATUS – TO BE PUBLICLY AVAILABLE

- ELECTRICAL
 - DESIGN IN-HOUSE
 - COMPUTE SUBSYSTEM : 32-BIT PROCESSOR
- ELECTROMECHANICAL
 - DESIGN IN-HOUSE
- MECHANICAL
 - DESIGN, PRODUCTION AND ASSEMBLY IN-HOUSE
- LINGUISTIC
 - AUTHORING IN-HOUSE

[*][*][*]

A REAL-TIME API-WRANGLING DATA-ANALYZING PLATFORM

MARKET STATUS – INTERNAL INFRASTRUCTURE ONLY

- ELECTRICAL
 - DESIGN OUTSOURCED
 - COMPUTE SUBSYSTEM : 64-BIT PROCESSOR
- ELECTROMECHANICAL
 - ON-MARKET SINGLE-BOARD EMBEDDED LINUX COMPUTER
- MECHANICAL
 - IN-HOUSE MANUFACTURED FUSED FILAMENT FABRICATED ENCLOSURE
- LINGUISTIC
 - ~10000 LINES OF CODE (Python)

[Ask us a question](#)