MicroLOGIX

Smart Electronics for a Connected World

Embedded, IoT Products and Software

Bangalore, India

MicroLOGIX

MicroLOGIX is an Electronics Company having 20+ years of market presence with Focus on Embedded, Internet of Things (IoT), Low Power and Long Range Wireless Networking technologies with Supporting Software and offers Services to Industrial, Medical, Automotive & Defence Markets.

Company Overview

- Established in the year 1997
- State-of-the-art facility spread across 20,000 Sq. Ft. in 4 Floors
- Strong team of 100+ Employees
- R&D and Software Development Team of 15
- Electronic Hardware and Software Design Tools
- Mechanical 2D and 3D CAD Tools

Company Overview

International Standards Certifications:

- ISO 9001-2015 Quality Management Standard (QMS)
- IATF-16949:2018 Automotive Standard
- AS9100:2016 Aviation, Space and Defense &
- ISO14001:2015 Environmental Management System (EMS)
- IPC610 and 620 Certified Resources - Acceptability Standards criteria for Electronics and Cable & Wire Harness assemblies

Manufacturing Infrastructure

- Through-Hole and SMD component Assembly
- IPC610 and 620 Certified Manufacturing Resources
- Material Management through ERP Software
- Company-wide ERP System for Efficient Material, Product Data and Finance Management

Markets Served

We have strong presence in the following Market segments

- Defense
- Automotive
- Industrial Automation
- IoT
- Power Infrastructure
- Mobile Telecom Infrastructure
- Medical

Design Services

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We offer the following Design Services:

- Industrial Design (Mechanical 2D and 3D)
- Hardware Design
- Prototyping
- Firmware and Software Development
- Cloud Connectivity
- Mass Manufacturing of Electronic Products

Embedded Design Capabilities

Embedded Design Capabilities

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Hardware

MicroController Platforms	Open Source Hardware	Wired Interfaces/ Protocols	Wireless Interfaces
ARM CORTEX (A8, A7)	Raspberry PI	RS232 - UART	Wi-Fi
MicroChip 8/16/32 Bit	Arduino	RS485 - MODBUS	Bluetooth
CORTEX M Series		ETHERNET - HTTP, TCP, UDP	ZigBee (Sub GHz)
		USB 2.0	
		CAN BUS	

Embedded Design Capabilities

Hardware

Battery Management

- Li-Ion, NiMH Etc.,
- Charging Circuits
- Battery Fuel Gauges

Power Electronics

- AC-DC and DC-DC Modules
- Discrete SMPS Design (Limited)
- Discrete Switched Mode DC-DC Converters

Display / User Interface

- 7-Segment Displays
- Character LCDs
- Graphical LCDs
- Capacitive Touch

PCB Layout

- Upto 8 Layers using Cadence Allegro
- Impedance Control Design
- Differential Pair
- Signal Integrity Compliance

Embedded Design Capabilities

Software

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Development Tools	Operating Systems	Languages	Web Applications
KEIL	Android	Embedded C	Python
MPLAB	Debian	C++	HTML/CSS/JS
		Python	

Design Team & Technology

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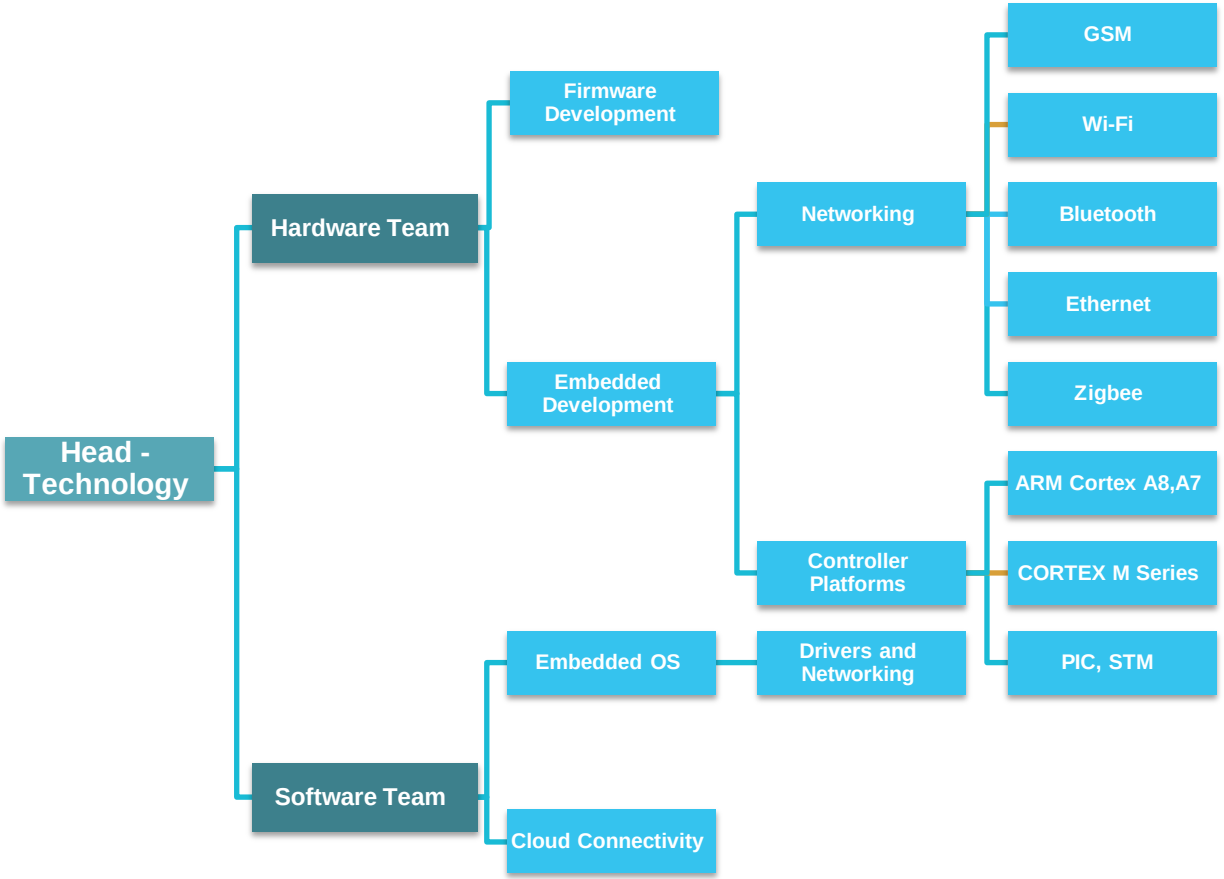

Projects / Case Studies

Few Design Case Studies

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- Dental Chair Movement Controller
- Dental LED Light Controller
- Programmable Operation Theater Table Controller
- IP Power Distribution Unit (IP-PDU)
- ATM/Bank Security System (4G+GPS)
- Portable Toilet Remote Monitoring System
- Wireless BlueTooth Sensors
- Gateway for Sensor Network Systems

Programmable Dental Chair Controller

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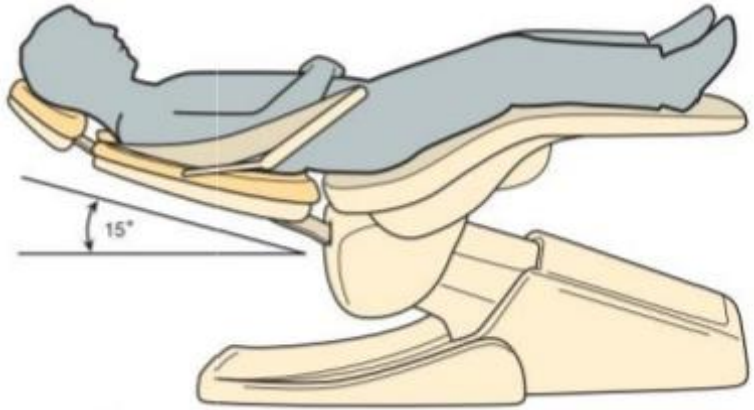
Programmable Dental Chair Controller features



- Chair Up / Down and Backrest Up/Down movement with 24VDC Actuators with Hall Sensor Encoder Position Feedback System
- Keys with 16 Keys (4X4 Matrix)
- Auto Sleep or Power Off System for Higher Reliability
- Programmable Positions and Zero (Flat) Option
- Driving Bi-directional High Current (10Amp+) Actuators to lift 150Kg
- Highly Resistant to EMI and ESD

Dental LED Light Controller

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LED Examination Light for Dental Chairs with the following features

- **Microcontroller based Intensity Control System**
- **IR Sensor to detect the Hand Motion to turn on / off the light**
- **Hand Motion to increase or decrease light intensity**
- **Driving a high current LED Lamp through Constant Current LED Driver**
- **Thermal Management**

Programmable OT Table Controller

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Programmable Operation Theatre Table Controller features

- 6 Axis Control through Electro-Hydraulic Actuators
- Optical Height Sensor and Rotational Position (Accelerometer) Feedback System
- Keypad with 16 Keys (4X4 Matrix)
- Programmable Positions and Recall Option
- On-board Discrete SMPS 12V-2A
- Highly Resistant to EMI, ESD and Surges

IP Based Power Distribution Unit (PDU)

Ethernet based IP PDU has in-built Energy Meter which measures & transmits the data to Server.

- **IP Based Power Distribution Unit (PDU)**
- **Multiple Power Outlet (Type C13&C19) Options**
- **Energy Parameters indication in Local OLED Display**
- **HTTP, SMTP and MODBUS Protocols implemented over Ethernet.**
- **CAN Bus for Adding Temperature, Humidity, PIR Sensors**
- **EMI and ESD Protections**
- **Internal Design for better HV Isolation**

ATM/Bank Security System (4G+GPS)

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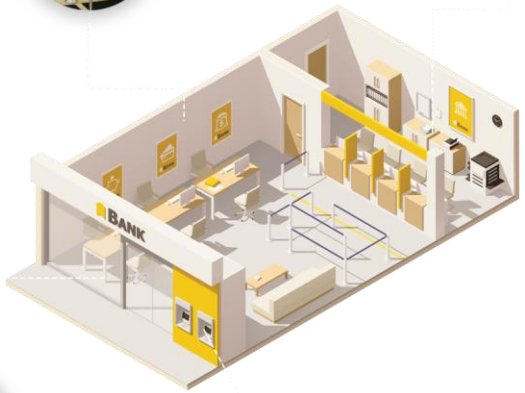
Video Based Surveillance System with 4G Modem to transfer the data to server for further analysis



- Microcontroller based Smart Security System for Banks and ATMs
- RF Module to connect to Door, Smoke, PIR and other sensors
- Dual 4G Modem with GPS for redundancy
- Audio CODEC for Voice Communication
- USB Hub to interface to SBC
- High Reliability built-in using EMI, ESD, Short-circuit & Overload Protections

Gateway

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High Performance Gateway features

- **RF Interface:** Wi-Fi, Zigbee, GSM, Bluetooth
- **Wired Interface:** Ethernet, UART, MODBUS
- **IoT Protocol:** MQTT
- **Networking Protocols**: HTTP, DHCP, TCP/IP
- **Cloud Platform:** Google Cloud
- Webpage and App Interface for Configuration

Cloud Connectivity

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MicroLOGIX offers cloud connectivity with

- Google Cloud

Google Cloud Platform

- MQTT, HTTP, TCP/IP Communication Protocols
- Email Alerts: Mailjet
- SMS Alerts: Twilio

Portable Toilet Remote Monitoring

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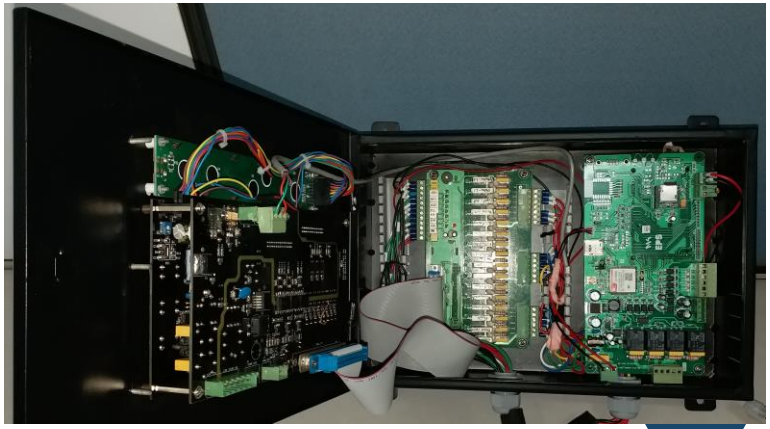
Project	Description	Scope
Easy Public Sanitation (EPS)	Portable, Modular Electronically Controlled Toilet	Electronically Controlled Toilet, Cloud Connected for Remote Management and Control, Data Collection, Website Interface, Admin and Maintenance Console



Other IoT Projects

Project	Description	Scope
Spider (Sensor Module with Zigbee Wireless)	Sub GHz Zigbee Sensor Gateway : Bluetooth, WiFi, GSM, RS485 connectivity with Multiple Protocols	Design, Tooling, Networking, Manufacturing, Testing and Shipping
FIND - Bluetooth Asset Tracker with Android App	Tracks assets using Bluetooth technology using Android App	Global Sourcing, Manufacturing, Testing and Shipping
Bluetooth Sensor	Environment Sensing with Temperature, Humidity, Vibration and Gyro Sensors	Global Sourcing, Manufacturing, Testing and Shipping

Projects - Gallery

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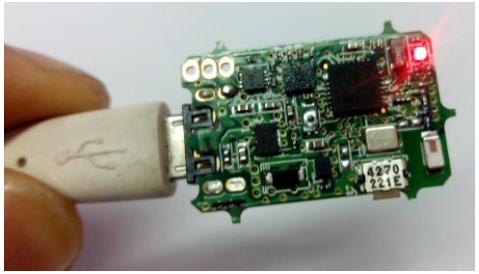
BlueTooth Vibration and Temperature Sensor



FIND - Asset Tracker

BlueTooth Sensor

Zigbee Sensor

Industrial Dryer Controller

Cabinet Cooling Fan Tray Controller

Projects - Gallery

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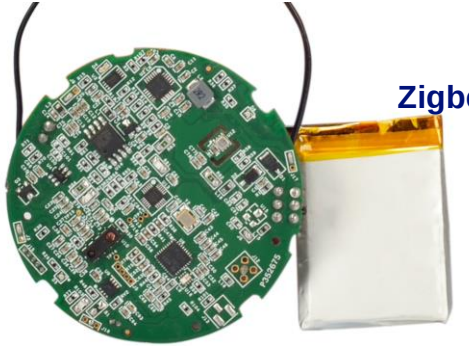
Industrial Controller

Home Automation Control PCB

Lubrication Controller

Zigbee Wireless Sensor



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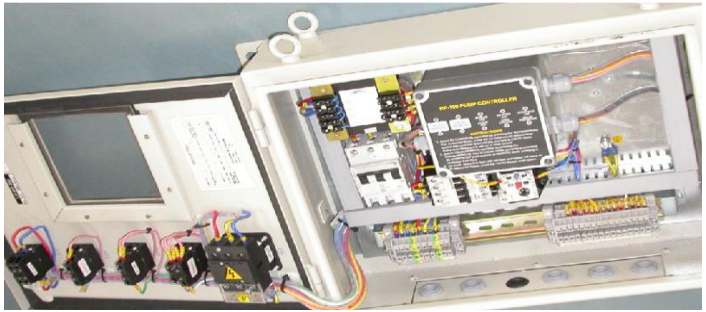

Automotive Customers

1. Agile Electric, Chennai
2. Eberspaecher Sutrak (Germany), Bangalore
3. India Japan Lighting (P) Ltd., Chennai
4. GlobalEdge Software, Bangalore

Automotive Customers

Igarashi Motors (I) Ltd.,

- Japanese Company located in MEPZ, Chennai
- Head Lamp Leveling PCB Assemblies
- 3 Models - External 12V, External 24V and Internal 12V
- High Volume Production - Projected to go up to 1 Mn units
- Supplies go to all major OEM Customers - Visteon, NeoLite, Lumax and Autolight
- Passed stringent standards established by IMIL

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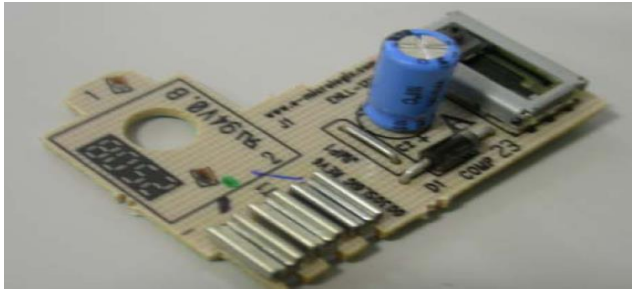
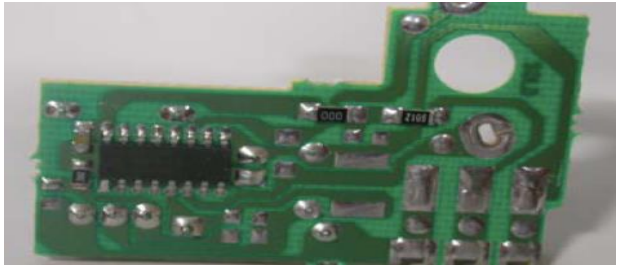
Automotive
External HLL EHLL-12V

IGARASHI
MOTORS INDIA LTD.





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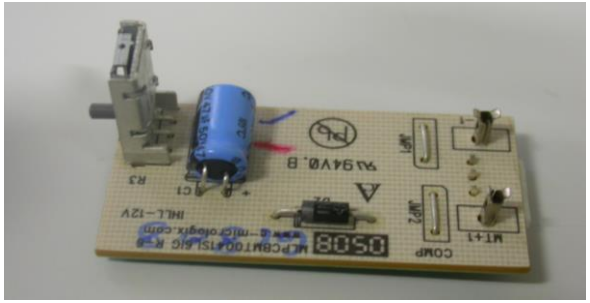
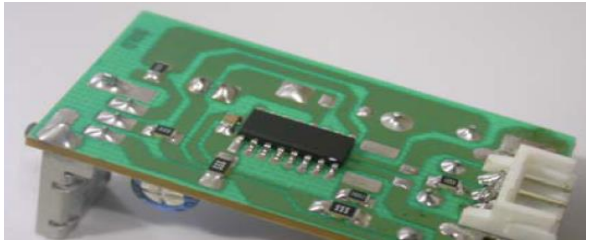
Automotive
Internal HLL-12V

IGARASHI
MOTORS INDIA LTD.





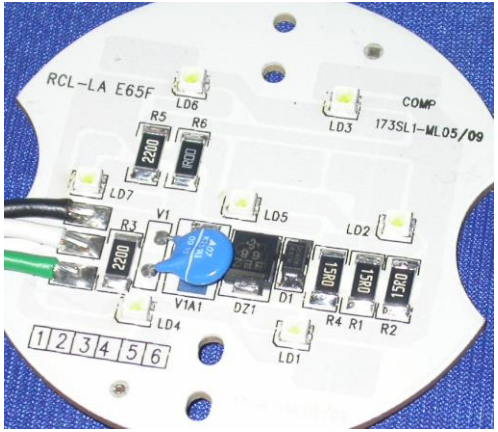
Automotive Customers

- **Eberspaecher (Carrier Transicold)**
  - Truck and Bus Air-conditioning Cabin Control Unit
  - Air-conditioning Control Relay Panels (4 Models)
  - Blower Speed Controller (Single/Dual Spindle 24V/20Amps)
  - Battery-less Alternator Assembly
  - Electronic Engine Control Panel (Under Development)

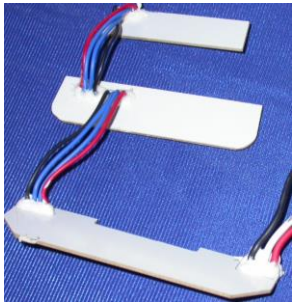
Automotive Customers

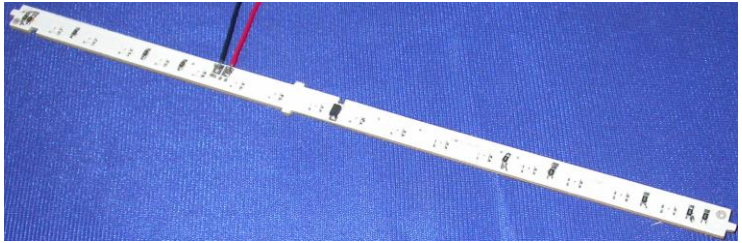
- Automotive AC Controls
- Mounted in Dash Board
- Temperature Control
- Blower Speed Control
- Heating and Cooling
- Host of Other Options

Automotive
LED Light PCBAs

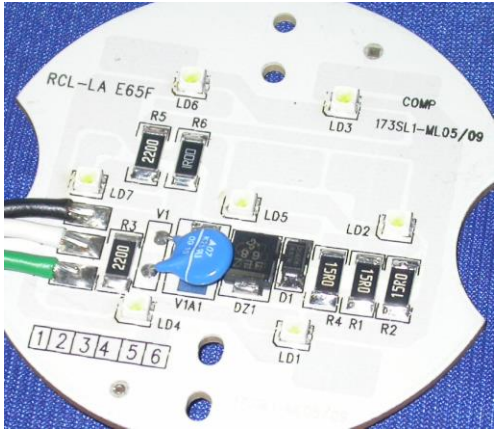


- LED Tail Lights for 2 Wheelers
- High Mount Stop Lamp (HMSL) for 4 Wheelers
- Interior Lights for 4 Wheelers





Automotive
LED Light PCBAs for 4 Wheelers



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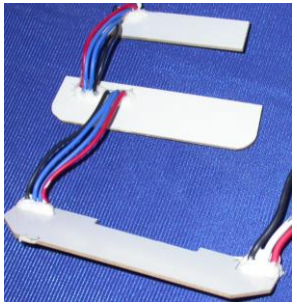

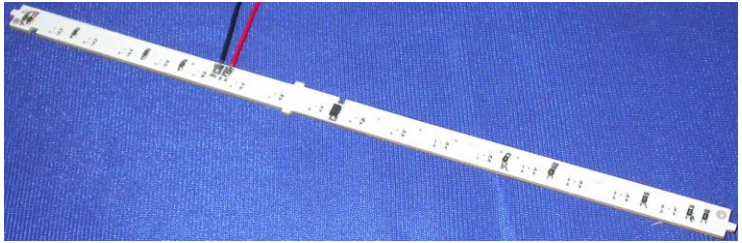

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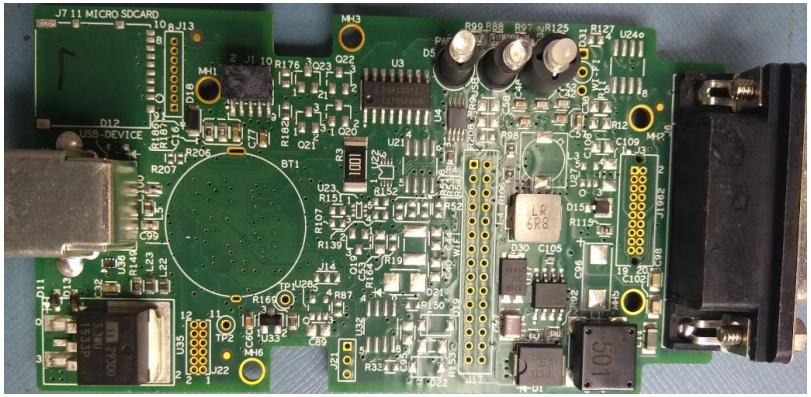
Automotive Customers

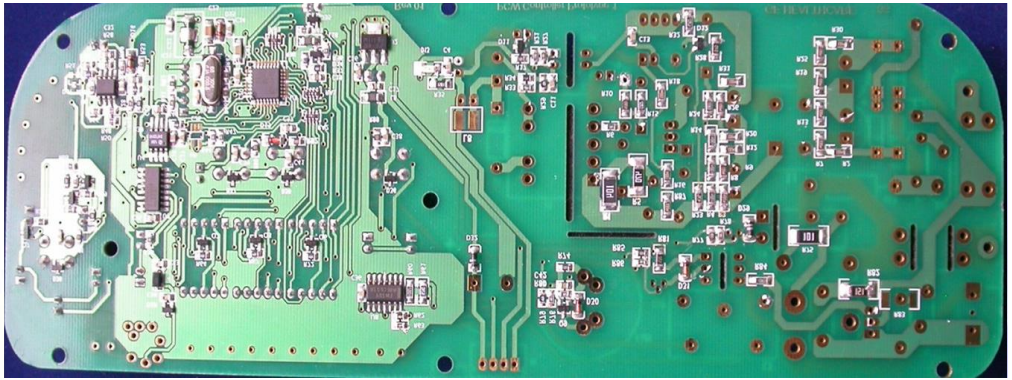
GLOBAL EDGE
Intelligence Of Things

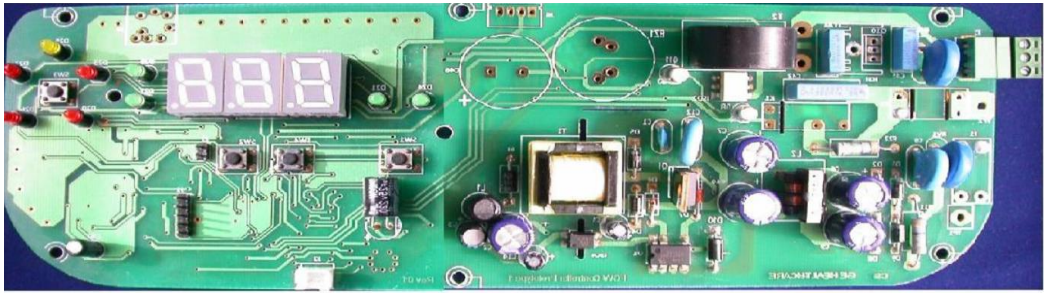


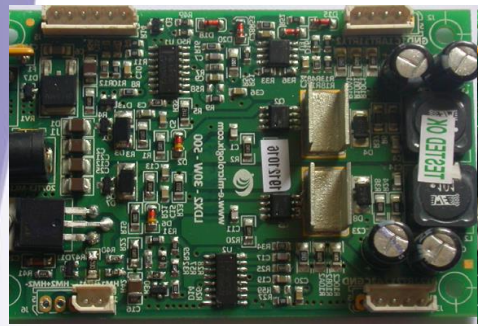
In-Vehicle Communication Controller

GE Healthcare, India

Sl No	Project	Scope	Status
1	Infant Photo therapy Control Development	Design, Engineering, Reliability Testing and Manufacturing	In Production
2	Infant Warmer Control Development	Design, Engineering, Reliability Testing and Manufacturing	In Production





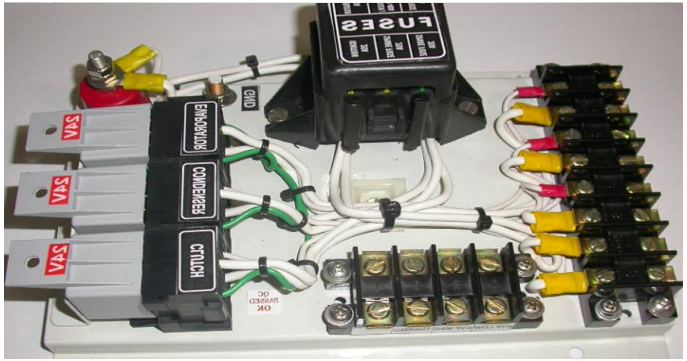


Eberspaecher, Germany

Sl No	Project	Scope	Status
1	Bus Climate Control (3 Models)	Design, Engineering, Manufacturing	In Production
2	Control Panels for Bus Climate Control (3 Models)	Design, Engineering, Manufacturing	In Production

Carrier

°C
Carrier
TRANSICOLD


FUSES
VAS
VAS
VAS
EVAPORATOR
CONDENSER
CLUTCH
GND

Bharat Electronics, India

Sl No	Project	Scope	Status
1	Navy Ship Sonar Power Supplies	Design, Engineering, Simulation Mechanical Fabrication, Manufacturing, EMC and ESS/ET	In Production
2	Navy Ship Sonar Display Cabinets	Design, Engineering, Simulation, Mechanical Fabrication, Manufacturing, EMC and ESS/ET	In Production
3	Navy Ship Sonar Processor Cabinets (VME Cages)	Design, Engineering, Simulation Mechanical Fabrication, Manufacturing, EMC and ESS/ET	In Production
4	Submarine Power Distribution Panel	Design, Engineering, Simulation Mechanical Fabrication, Manufacturing, EMC and ESS/ET	In Production

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Other IoT Projects

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Project	Description	Scope
IP Based Power Distribution Units (IP PDUs)	Ethernet and Wi-Fi Connected PDU with CAN Bus Interface for Energy Metering, Sensing and Intrusion Prevention. Works on Wired or Wi-Fi with SMTP Protocol	Hardware and Embedded Software, Embedded Web Server Development with Web Pages to show the Data, Local OLED Display Based Development
Fan Tray Controller	To Sense the Temperature Inside the 4G Baseband Towers and Cool them with Speed Controlled Fans. RS485 MODBUS to communicate the status	Hardware and Embedded Software Development, LED Display, Keypad Design

Other Projects

MicroLOGIX

Project	Description	Scope
Power Distribution Units (PDUs)	Ethernet and Wi-Fi Connected PDU with CAN Bus Interface for Energy Metering, Sensing and Intrusion Prevention. Works on Wired or Wi-Fi with SMTP Protocol	Hardware and Embedded Software, Embedded Web Server Development with Web Pages to show the Data, Local OLED Display Based Development
Fan Tray Controller	To Sense the Temperature Inside the 4G Baseband Units and Cool them with Speed Controlled Fans	

Website - Dash Board

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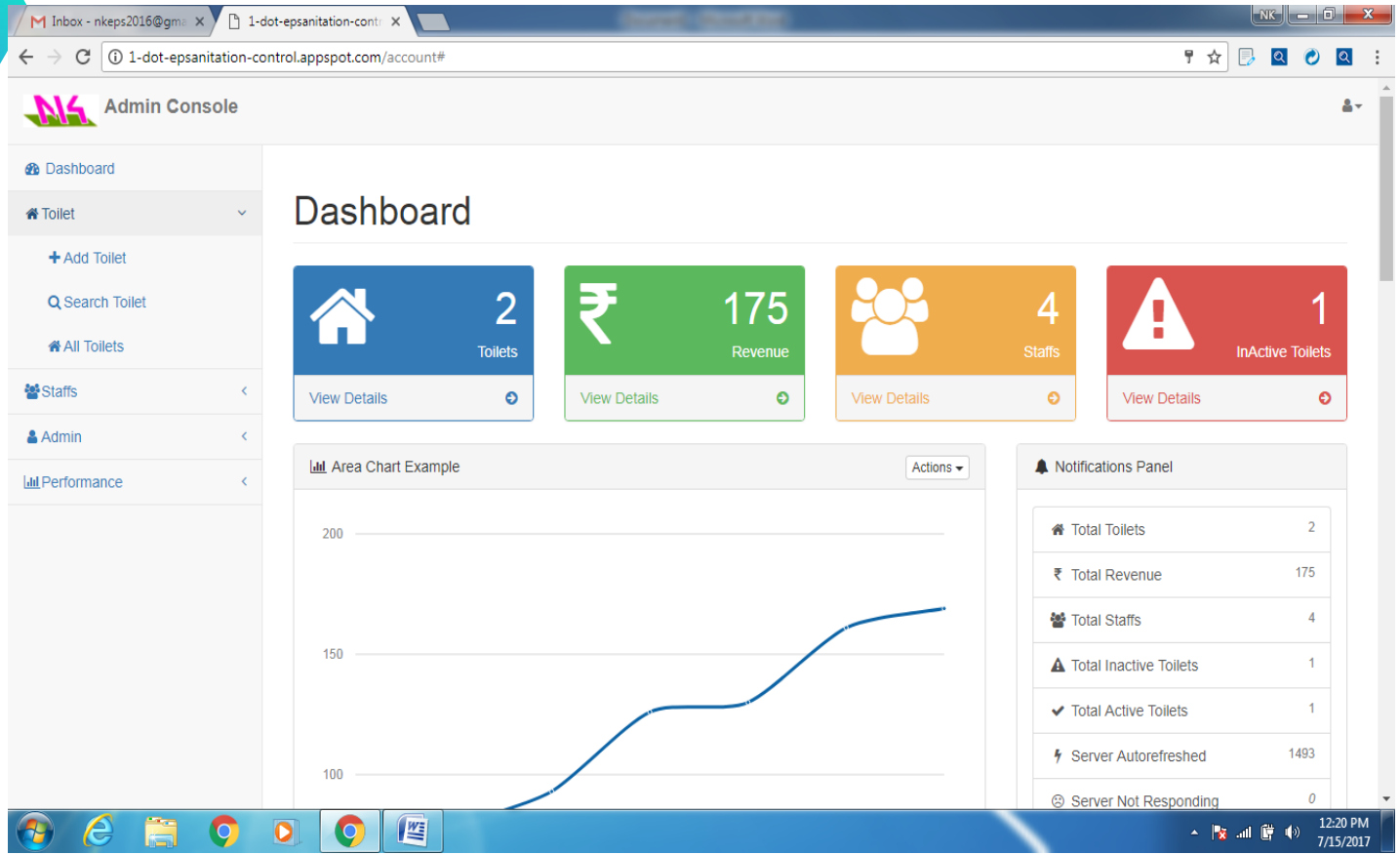
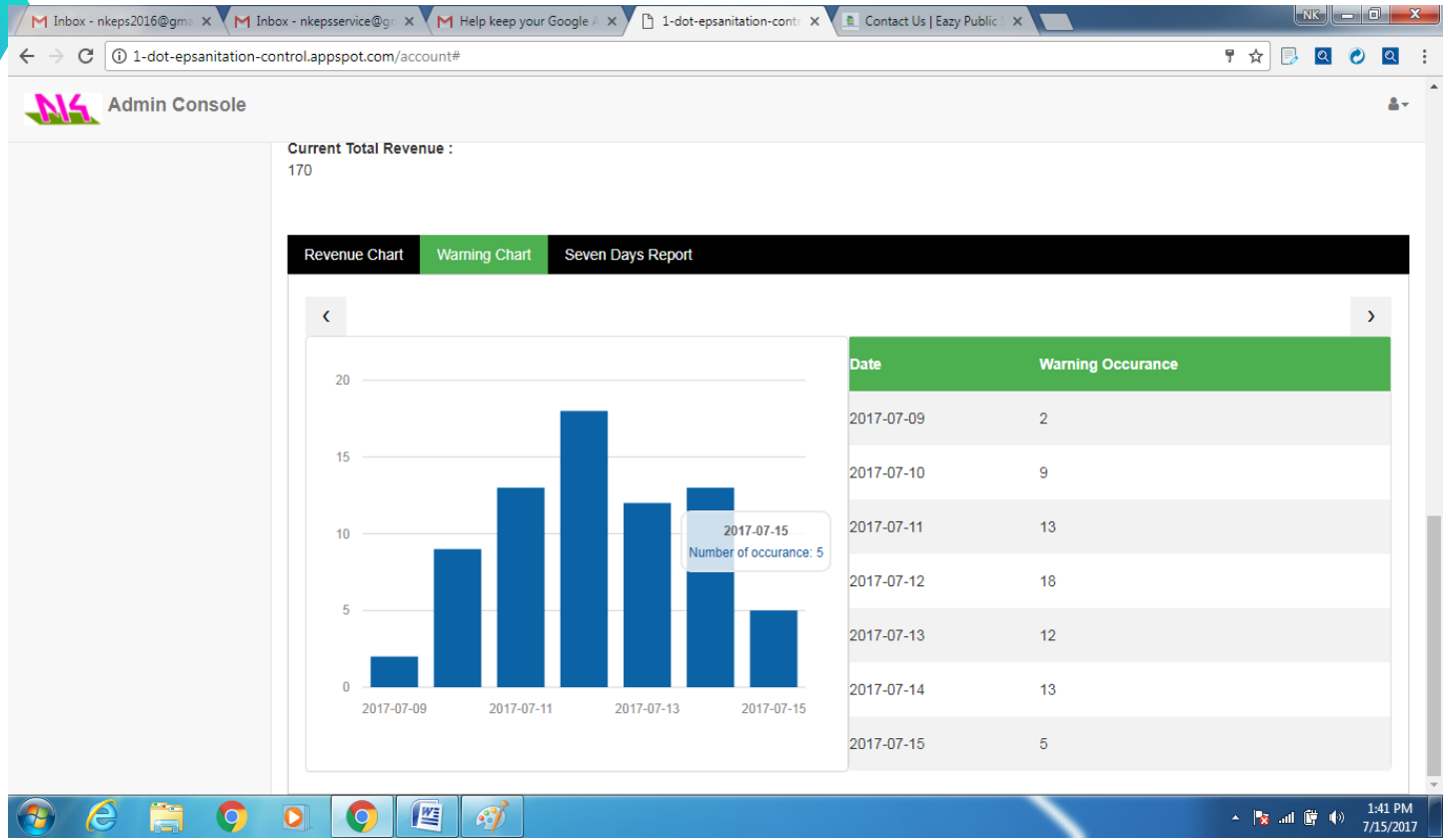


Website - Admin Console



Website - Spider Sensor

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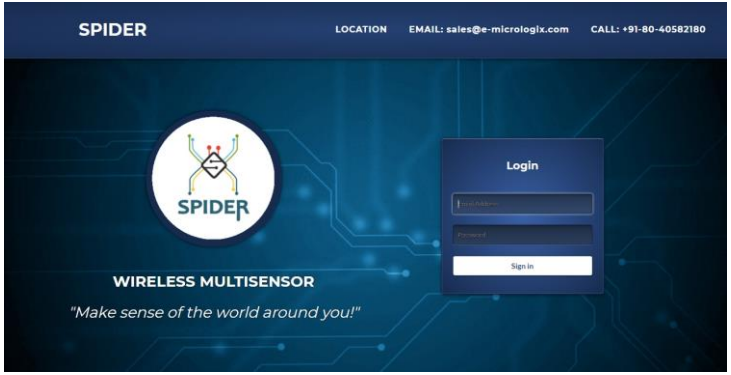

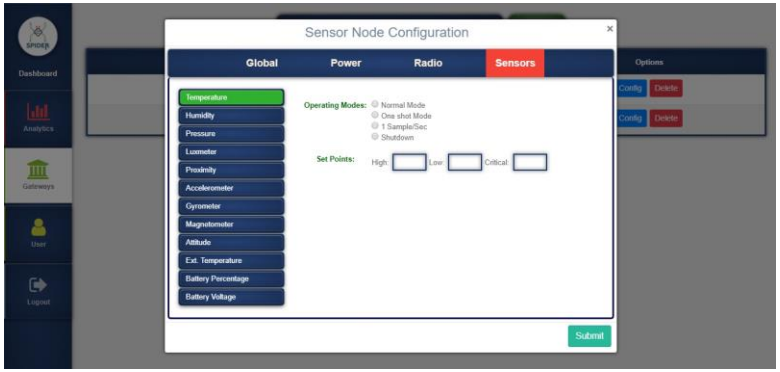

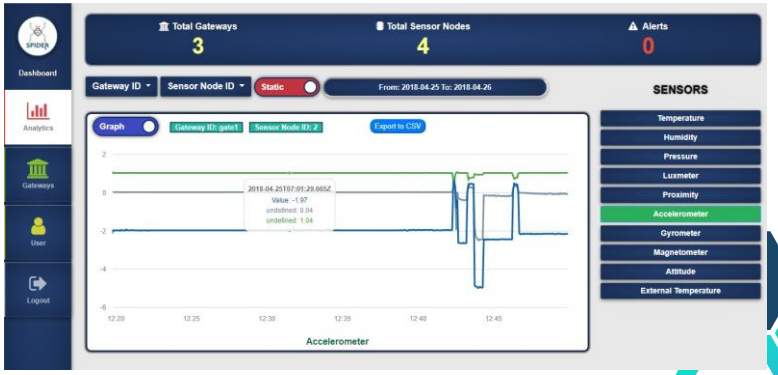

Android Mobile App - Spider Sensor

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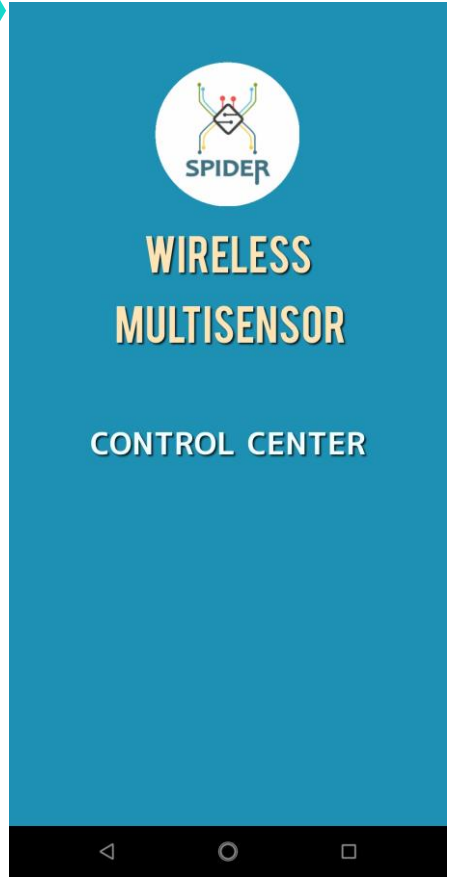

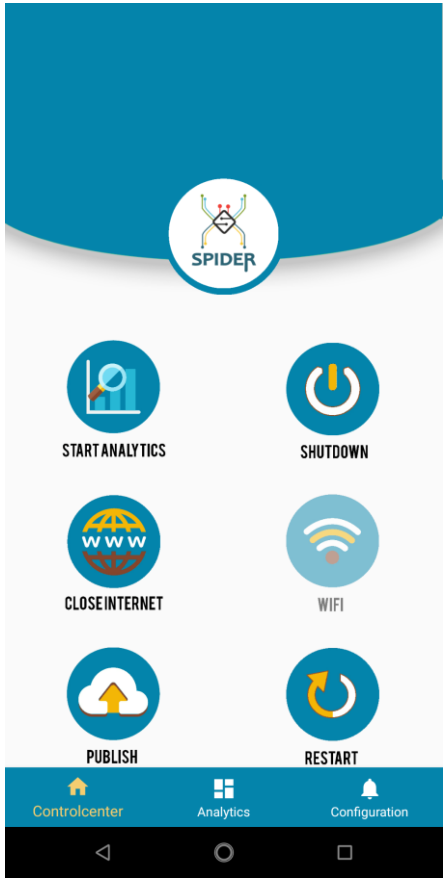

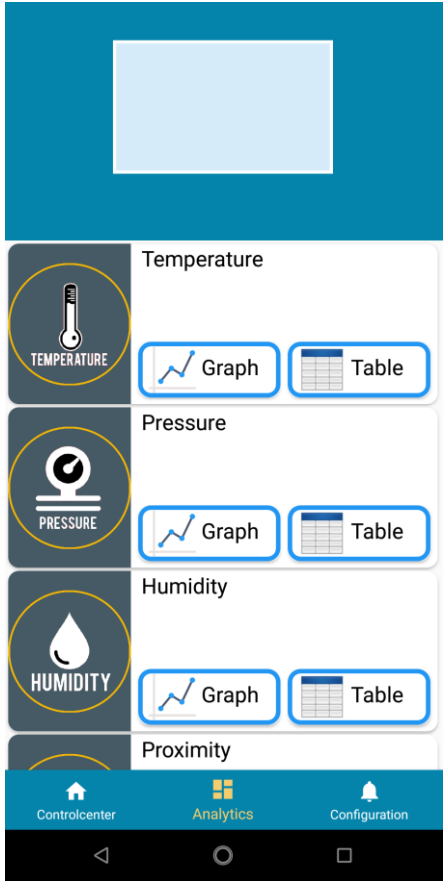

Android Mobile App - Spider Sensor

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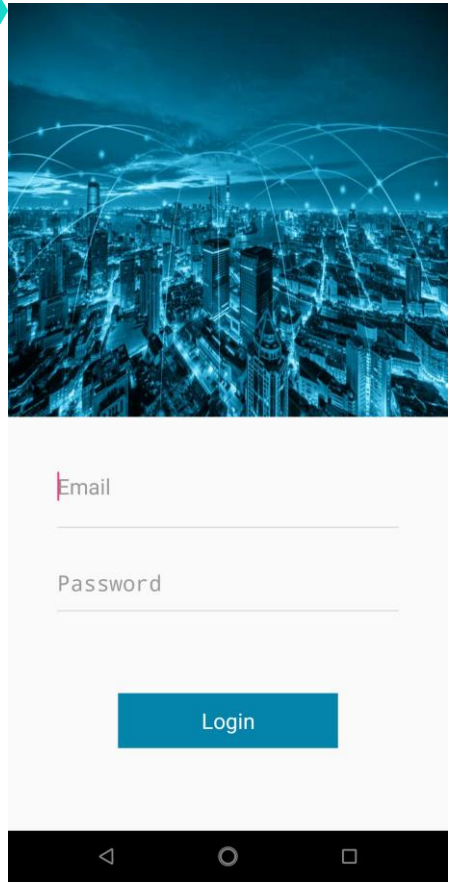

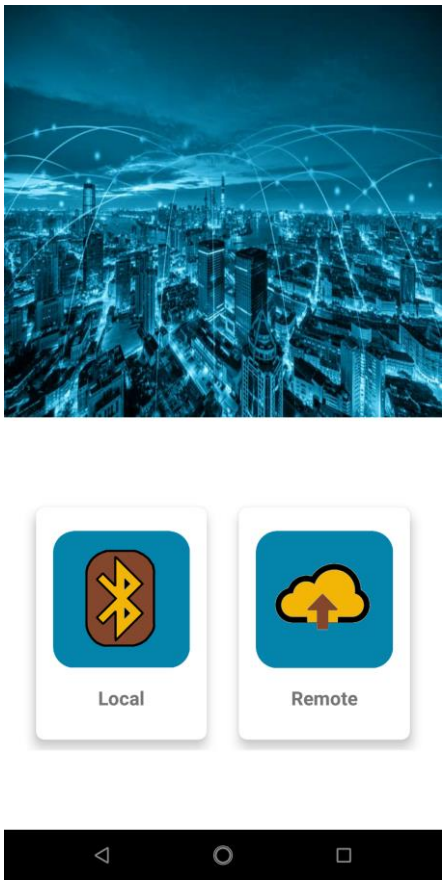

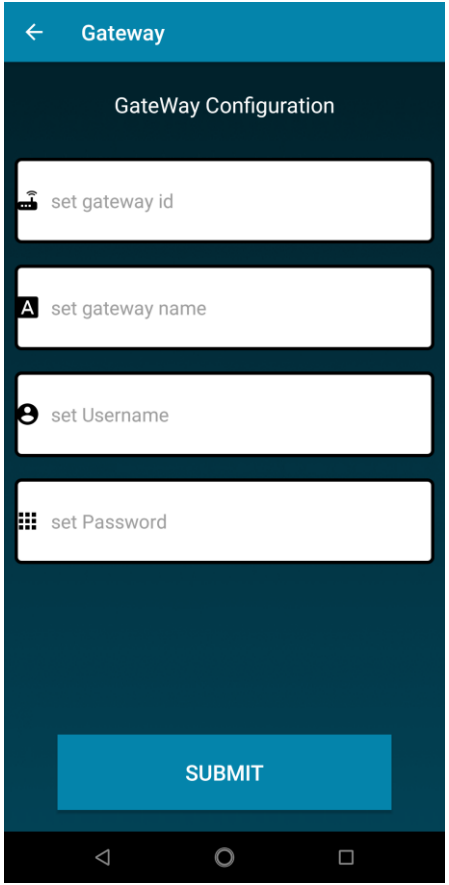

Thank You!

MicroLOGIX

473D, 13th Cross, 4th Phase, Peenya Industrial Area, Bangalore - 560058, India

Website : www.e-micrologix.com

Phone : +91 80 - 41272180 - 83

Email: sales@e-micrologix.com