

Mr. Sunil Maurya



Ph.D. – Pursuing (MPCP-Multiprocessor Communication Protocol)

M.TECH. – Electronics & Telecommunications

B.E. – Computer Science

Proprietor of

- LogicInside techno lab – Mumbai, India.
- LogicInside techno kits – Mumbai, India.
- LogicInside Educational Institute – Mumbai, India

Editor in Chief – IJIT: International Journal of Infinite Innovations in Technology.



SINCE 2002

LogicInside
its within you, explore to get outside



Curriculum Vitae

Introduction

Address...

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www.ijit.LogicInside.net

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Currently running **LogicInside** at position of managing director & research head and also working as project consultant & guide. My areas of interest are Embedded Systems & Software Developments. Having 20+ years of experience in designing & developing Embedded Applications for Industries and also spreading light of knowledge to all technical students through guiding them for realization of their Final Year Projects and conducting Embedded Courses. My students have won many awards at national and international platforms including NASA winning FIRST PRIZE in 2013 and again in 2016.

Current

Running LogicInside Institute...

LogicInside is a technical educational institute. It is serving engineering students since 2002. It is well known for its quality education and hence is ISO 9001:2008 certified. It caters technical students studying in Ph.D., M.E., M.Tech., B.E., B.Tech., & Diploma courses.

Apart from this, it is mainly into design and development of industrial products based on embedded systems and is always into R&D to meet the ever-changing demands of industry and technologies.

Editor in Chief...

Running an online journal IJIT: International Journal of Infinite Innovations in Technology (ISSN: 2278-9057) in position of editor in chief since 2012.

My responsibility is to review and to publish the received research articles, case studies, technical reports and papers from authors.

Teaching

Embedded Courses...

Having 20+ years of experience in conducting various seminars and lectures on embedded systems.

Designed an **"Embedded Training Program"** with very-well Organized & Completely Authentic syllabus. This training program helps students in learning the basic principles of writing software for Embedded Systems and designing Microcontroller Based Applications. In particular, the syllabus is completely Practical Oriented.

This training program teaches students step-by-step about the advanced industrial programming & development of sophisticated systems, in an experimental manner.

In addition to explaining how to design, this training program points out how one can use the experiments performed here, most effectively.

The Highlights of the Embedded Course is as follows...

- ✓ Working on Microcontrollers Families Viz. 8051, AVR, PIC, ARM7 and Arduino Board, Raspberry PI (RPI) Board
- ✓ Interfacing Standard Peripheral Devices Viz. Sensors & Actuators
- ✓ Interfacing Advanced Peripheral Devices Viz. GPS, GSM, MMC, RFID, FingerPrint, MIFARE, NFC, etc.
- ✓ Communication Standards viz. Serial, Parallel, Wireless, Bluetooth, IOT, etc.
- ✓ Protocol Standards viz. I2C, SPI, CAN, MPCP, etc.
- ✓ And many other programming skills that will be taught but cannot be written

Teacher Training Program...

Conducting Teachers Training Program (TPP) in many colleges.

This training program is not academic or theoretical; this is fully practical & offers technological information and engineering advice in embedded system designing.

The TPP is attended by engineering college professors and final year guides so that they can upgrade & explore their skill to guide their students for their academic projects.

Guest Lectures...

I am visiting faculty for taking guest lectures on various technologies in embedded systems invited by technical colleges.

I am also being called to take lecture on providing guidance to final year students so that they can choose & plan for their academic projects in proper way.

Judging Competitions...

Have been called several times as Judge for various students' competitions & exhibitions in the category of electronics and embedded systems.

Knowledge Domain

Technical Expertize...

Keil

Embedded System Designing
Embedded Programming

Driver Development

Internet of Things (IOT)
M2M Communication

Protocol Development

Universal Windows Applications

PCB Designing

Image Processing

C/C++

VB.NET, C#.NET

Java

Eclipse Platform (IDE)

Android Studio

Application Programming

Database Programming-SQL Server

System-Driver Programming

Mobile Programming

MATLAB

OpenCV

Wireless Communication

Industrial Product Designing

8051, PIC, AVR, ARM7, etc.

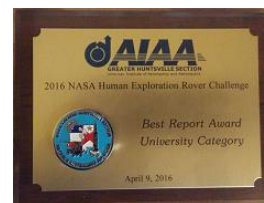
Achievement

Winning Award at NASA...

My students have won many prizes at state and national level platforms in various competitions.

My most prestigious achievement was winning FIRST PRIZE at NASA in category – “Best Innovative Telemetry System Award” at 20th Annual NASA Moon Buggy Race, 2013, which was held in Huntsville, Alabama.

Again in 2016 my students got prizes in various categories at NASA.



Publications

Paper Publications...

Have published more than 25+ Research Articles & Journal Papers of my own work. Some of them are as follows...

- Development of Secured Military Data Storage Media
- Design & Development of Multiprocessor Communication Protocol

- Touch Screen Based Dynamic Signature Verification (DSV)
- A Fair FARE System
- Automatic WiFi Notice Transmission in College Campus
- Human Path Tracer & Logger in Mobile
- PC Monitored Guard with Auto Sensing of Emergency
- Automation of College Students Attendance System with No Proxy
- Digital Vehicle Data Recorder (DVDR)
- Automatic Indicators for Bus Stops
- Embedded Web Server Implementation for Microcontrollers
- Braille Language-Self Learner for Blinds
- MobiRemote - Turning the Mobile into Remote Control
- Intelligent Gadgets for Bikers With Alert SMS & GPS Positioning
- Interactive Services of College Database for Students
- IOT Based Weather Probing System
- Wireless Automatic Station Identification System with Announcement
- LPG Gas Leak Detector with Automatic Knob Controlling
- Many Others...

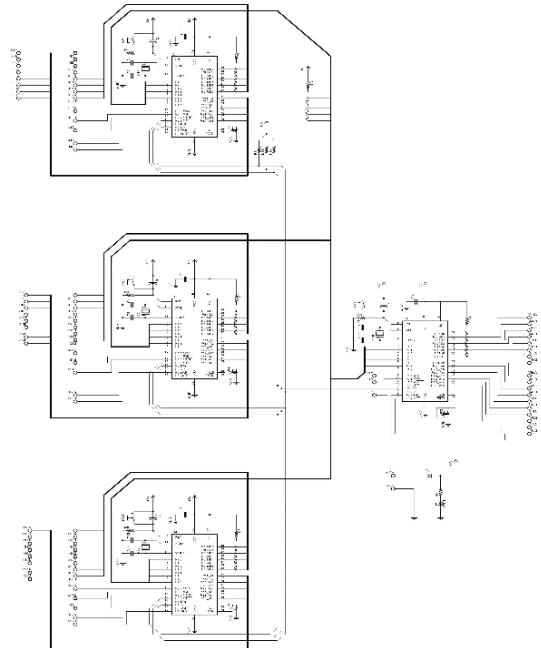
Apart from these publications I have developed & designed nearly 100+ innovative concepts. They will be published in subsequent years.

Invention

Multiprocessor Communication Protocol...

There is always a typical requirement in most of embedded system to communicate with multiple peripherals and/or with multiple controllers. Designing of such system becomes tedious job. There are some protocols available such as I2C and SPI. But they communicate serially with each other and hence are slow. They also need to be configured in master slave mode.

I have invented a totally new communication method between multiple controllers using parallel connection with each other. This makes system as much as faster it can be. Any controller can communicate with other eliminating the need of master slave.



The hardware architecture & the protocol designed are robust and yet simple to use and can be easily adapted in any embedded system.

Allduino Development Board...

Developed **ALLDUINO** as an electronics prototyping board that can be used for educational purpose.

ALLDUINO is designed in such a way that one can easily develop any application within no time. This development board can amazingly run AVR, PIC, 8051 family of 40-Pin microcontrollers all on it making it truly **ALL-in-ONE** fully Re-configurable Embedded Systems Learning Platform.



Consumer Products

JiyArth – Remote Controlled Regulator...

This device is a digital fan regulator which can be controlled with an infrared remote. It uses **PIC controller** for its various operations like – decoding IR signals, switching the appliance ON/OFF & its power regulation.

The system works on inline power supply, zero cross detector (ZCD), MOCs and sine wave chopping using TRIAC.

This is a complete consumer product sold on amazon & flipkart marketplaces.



Windows-Door Alarm Module...

This device is installed behind door or windows as a standalone module. It produces loud alarm sound whenever intrusion is detected.

It uses a specialized alarm IC, a Coil based Sound Amplification, a Piezo Buzzer & a Reed Switch as magnetic sensor.

This is a complete consumer product sold on amazon & flipkart marketplaces.



Industrial

Handheld Remote Monitoring Unit

I have developed this product for ICS Technologies Private Ltd - Mumbai.

This product is used in monitoring the condition of underground gas pipeline for corrosion or any other issue. The RMU constantly monitors the desired parameters and transmits them to remote location via GSM network in form of SMS also have MMC for data logging.

Technologies Used : Embedded System, SCADA, GSM Communication, ARM7 Controller

Diamond Purity Analyzer

I have developed this product for Orasi Technologies Private Ltd - Mumbai.

This system was designed to take photographs of diamonds in a pre-assigned environment and was controlled by PC.

Technologies Used : Embedded System, 8051 Family Controller

Fire Alarm Units

This product was developed for UUTOPIA ENTERPRISES - Mumbai.

The product is used to trigger automated alarm in particular fashion whenever there is fire in the vicinity. This product is currently installed in oil mining platforms offshore in sea.

Technologies Used : Embedded System, AVR Family Controller

DTMF Controlled Reconfigurable Switch

This product was developed for GRM Energy, Nirmal Microsystems - Mumbai.

This product is recently being installed in Indian railways. Its job is to activate & deactivate a particular switch whenever triggered by user. Due to confidential nature of the system, it cannot be described in details.

Technologies Used : Embedded System, 8051 Family Controller, DTMF Communication

Remote Controller for Window Curtains

This product is part of home automation and was developed for one of my client. It

was mas manufactured and installed in various housing projects. The job of the system was to open-close the curtains of the window using any infra-remote control.

Technologies Used : Embedded System, PIC Family Controller, INFRA RC5 Protocol

LPG Cylinder Valve Controller

This product is a consumer product and was developed for one my industrial client. The job of the system is to detect any leakage of LPG gas from consumer cylinder and take prompt action by controlling the valve connected in the system.

Technologies Used : Embedded System, PIC Family Controller

Speed Indicator Panel for Railways

This system is installed in railways at Kasara & Karjat Ghat. Its job is to track & monitor the speed limit of a trains running in that vicinity and to display this information on a panel in a central monitoring room.

Technologies Used : Embedded System, ARM Family Controller, Wireless Communication

Other Industrial Projects...

- Fastest Finger First for Quiz Competitions and Entertainment Industry
- Dental Pressure Monitoring System on Mobile for Biomedical
- Industrial Light & FAN Controller
- Remote Monitoring Unit for Mahindra & Mahindra – Nagpur
- Various Melody Sound Horn Controller for Transport Trucks
- Watchman Path Tracer & Logger for Security Systems
- Security Alarming System for Terex Coal Mines
- etc.

Embedded Systems

Microcontrollers Specific Knowledge...

8051, AVR, PIC, ARM7, Raspberry PI, Arduino
(Can easily adopt & learn others depending upon requirement)

Programming Languages & Platforms...

8051 Family Microcontrollers

Assembly Language
Embedded ANSI C
Keil-uVision5

AVR Family Microcontrollers

AVR Studio 5
WinAVR
MikroC PRO for AVR

PIC Family Microcontrollers

MPLAB

CCS

MikroC PRO for PIC

ARM7 Family Microcontrollers

Keil MDK-ARM + RTOS
MikroC PRO for ARM

Raspberry PI

Windows IOT Core,
Visual Studio 2010
(Universal Windows Platform)

Peripherals Interfacing Knowledge...

General Peripherals

LCD (in 8-bit & 4-bit mode both),
7-Segment,
5×7 Dot Matrix Display,
Keymatrix (4×3 or any type),
PC-AT Keyboard,
Relay,
ADC & DAC,
Voice ICs,
Real Time Clock (RTC),
External Memory (Serial & Parallel both),
DC Motor,
Stepper Motor,
Servo Motor,
etc.

Advanced Peripherals

SD/MMC Card,
Mobile Phone-NOKIA 3310/3315,
GSM/GPRS Modem,
GPS Modem,
Graphic LCD of NOKIA 3310/3315,

Swap Card,
RFID Card,
MIFARE Card,
etc.

Sensor Interface

Infra Rays Sensor,
LDR-Light Sensor,
Proximity Sensor,
Metal Sensor,
Moisture Sensor,
Ultrasound Sensor,
Motion Sensor,
Temperature Sensor,
Smoke/Fire Sensor,
LPG Sensor,
Alcohol Sensor,
Vibration Sensor,
Current Sensor,
Color Sensor,
Dust Particle Sensor,
Biomedical Sensors,
Tilt Sensor,

Graphic LCD of 128×64
Touch Screen,
Finger Print Scanner,
Thermal Printer,
Smart Card,

Accelerometer,
Flex Sensor,
Force Sensor,
etc.

Technologies & Protocols Specific Knowledge...

Technologies

IOT – Internet of Things
RTOS (Real Time Operating System),
Webserver, Webclient,
M2M Communication – GPRS Link,
Robotics,
Industrial Automation

Wireless Technologies

Infrared Communication,
Free Space Optical Communication,
Radio Communication (ISM Band),
Bluetooth Technology,
Zigbee Based Wireless Sensor Network,
Wifi Technology,
RFID Communication,
NFC Communication,

Protocols

I2C (IC to IC Communication),
SPI (Serial Peripheral Interface),
Modbus Communication Protocol,
CAN (Controlled Area Network) Protocol,
Serial Communication Protocol (RS232, RS422, RS485),
MPCP (Multiprocessor Communication Protocol),
Embedded FAT32 Protocol Implementation for SD/MMC Cards,
Embedded TCP/IP OR UDP/IP Stack,
HTTP Protocol (for embedded web server),
Bluetooth RFCOMM - SPP (Serial Port Profile),
FBus Protocol,
AT-Commands (Attention Commands),
etc.

PCB

PCB Designing in Eagle (Easily Applicable Graphical Layout Editor)
Single Sided, Double Sided
Generation of GERBER Files
PCB Development Using PCB CNC- Milling Machine

Smart Transit Sign for Bus Stops - Bus Stop's Indicator

Electronic Chess Board

Stand Alone Automatic Industrial Parameter Controller - SCADA

Development of Secured Access Control System for Door

Development of Robust & Highly Secured Information-Data Storage Media

Passenger BUS Alert System for Easy Navigation of Blind

Fully Automatic Object Sorting Conveyor Belt

Fully Automatic Bottle Filling System with Quantity Control

Development of Navigational ROBOT

Development of Router for Embedded Systems

Light Detection And Ranging (LIDAR)

RFID Based Fastest Ever Automatic Self Coupon Ticket Printing Machine for Railways

Weather Probing System - Environment Monitoring

GPS Video Advertiser for Buses & Trains - Location Based Advertiser

Development of Handheld Bus Ticket Printing Machine

IOT Based Controlling & Status Monitoring of Appliances

MobiKey : Using Android Mobile as Digital Key for Home Doors

Digital Rope Cutting Machine

On-Panel Signaling System for Trains with Automatic Breaking

Intra Body Communication

Embedded Web Server

Smart Socket - A Smart Approach Towards Reducing The Electric Bill

Advanced Interactive Remote Door Bell Communicator : Your Home Security

Fully Automatic Management of Energy Meter Data & Billing Cycle with Power Cut-OFF

PC Monitored Guard With Auto Sensing of Emergency - Guard Tour Manager

Women Protector - Design & Development Women Safety Waist Belt

Smart Door Bell with Visitor Message Recorder

LiFi-Light Fidelity : Free Space Visual Light Communication (VLC) System

Fingerprint Based Hand Held Terminal for College Students Attendance System with No Proxy

Android Mobile Based Searching & Reserving for Parking Space in City

IOT Based LIVE Remote Patient Health Monitoring System

GPS Based Vehicle Position Tracking on Google Map in Real Time

Hand Held Terminal for Election - Increasing The Voter Count

Zigbee Based Wireless Network for City Clean-Up ! : Bins Overflow Indicator & Waste Collection

Intelligent Gadgets for Bikers With GPS Positioning & Alert SMS

Android Mobile Based Queue Less Ticketing System for Local Trains

SPARSH - Passing Data Through Body as a Medium - Red Tacton - HAN

Touch Screen Based Hand-Written Character Recognition

Leap Motion Controlled Precise Robotic ARM Controller

A Fair FARE System - a Meter that can NOT Cheat

Unmanned Bus Ticketing System

Real-Time Detection and Tracking of Traffic Sign in Video Sequences for Autonomous Mobile ROBOT

Designing Smart Card Based Prepaid Electricity Meter

Finger Braille: Tactile Communication For Differently Abled

Digital Dental Pressure Monitoring System

OpenCV Based Robust License-Number Plate Recognition

Most Advanced Smart Shopping Cart - Auto Bill Generation

Design and Prototype of Automatic In-Vehicle Road Sign Delivery System

Academic

Educational Qualification

Ph.D. – Pursuing in Embedded System (Multiprocessor Communication Protocol)
Sikkim Skill University (SSU)

Master of Technology(M.Tech.): Year 2014
Electronics & Telecommunications
Karnataka State Open University (KSOU)

Bachelor of Engineering (B.E.): Year 2002
Computer Science
University of Mumbai

HSC: Year 1998
SSC: Year 1996

Special Academic Achievements:

- Topper of School in SSC and was awarded by Rotary Club of Thane.
 - Highest Marks in Hindi Subject (SSC) in Thane District and was awarded by Thane Mahanagar Palika.
 - First Prize Winner of "All India Camel Color Contest".
 - First Prize Winner in Various Competitions during Engineering Academic Years
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