

# Prasad Sanjay Kale

## Embedded Firmware Developer

Master of Engineering in Embedded Systems & VLSI

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## CAREER ASPIRATION

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Acknowledging every task as an opportunity to explore, develop and be a motivation for the good of collaborative work. The work, that is not confined to just the planned development process, but is also about ensuring the quality, compliance & customer satisfaction from system point of view.

## PROFILE COMPETENCIES

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- Interaction with domestic as well as international costumers.
- Project feasibility study and requirement analysis.
- Firmware development including design and coding of applicable mathematical algorithms.
- Schematic design and assistance in layout for smooth integration and certification.

## TECHNICAL SKILL SET

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Controller architectures	ARM 7, Cortex M4F, M7, PIC24F, ColdFire v2, etc.
Device families	Atmel (ATSAMV71) NXP (Kinetic K64, LPC4088, MCF52259, MC56F82313) Microchip (PIC24EP)
Language and Environment	Embedded C on Bare metal and RTOS.
Communication interfaces	Ethernet, USB, EMC, UART, RS485, I2C, SPI, etc.
Communication protocols	MODBUS, TCP-UDP/IP, JSON over MQTT, etc.
IDE toolchains	IAR, CodeWarrior, MPLAB X, MCUXpresso, Keil.
Debugging	Segger SystemView profiler, JTAG/SWD debugger, DSO and Salae Logic protocol analyzer.
FPGA	Application development on Xilinx Spartan XC3S50A in System Verilog.
Hardware	Schematic design using orCAD and Eagle. IEC 61326 and CISPER11 certification aware validation of schematic and BOM components.
Others	Coding for Arduino, Simulation and design tools like MATLAB, DraftSight. Working practice in ESD safe environment.

## WORK EXPERIENCE (3 YEARS AND 11 MONTHS)

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### Senior Engineer

Research and Development Department

Electronica Mechatronic Systems (I) Pvt. Ltd.

9<sup>th</sup> January 2017 - 31<sup>st</sup> October 2019 (2 years and 9 months)

### Profile Highlights:

- Youngest participant in company's Leadership Excellence Action Program (LEAP)
- First ever performance based reduction in probation period in R&D Department.

## Major Projects:

### Four Axis Stepper Motor Motion Controller (Product Lead)

- Migration of existing motion controller application to LPC4088 platform in FreeRTOS.
- Development of closed loop PID, interpolation algorithms in LPC4088 and velocity algorithm on FPGA.
- Communication protocols used - USB Device (CDC VCOM and custom CDC), EMC, I2C EEPROM, SPI
- Feature selection and schematic design. Developed +/- 10 volt analog motor control circuit.

### Metrology products for Indian Railways – Diaspect, IDspect and Profispect (Product Lead)

- Dial gauge and laser sensor interfacing to Kinetis K64 microcontroller.
- Diameter calculation algorithm and firmware development.

### LPC4088 System Board Bring up (Team Member)

- SRAM and FPGA interfacing over EMC bus, USB based secondary internal flash IAP bootloader.

## Other Projects:

Parallelism checking machine, DRO as PLC, Absolute encoder demo jig for international exhibition, etc.

## Research Associate Intern (Embedded Development)

Kshiti CleanTech Pvt. Ltd.

1<sup>st</sup> August 2015 – 30<sup>th</sup> September 2016 (1 Year and 2 Months)

## Responsibilities:

Design, development and technical assistance for research projects jointly carried out by Kshiti CleanTech and Dept. of Electronic Science, Pune University.

## Major Projects:

Development of water flow measurement logger erected at Kasheli bridge, Thane as feasibility check equipment (FCE) for submerged natural tidal wave power generator.

## CERTIFICATIONS

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Completed "FreeRTOS from ground UP by Israel Gbati" course on Udemy - July 19.

## EDUCATIONAL QUALIFICATIONS

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### Master of Engineering

Embedded Systems and VLSI, 2014 – 2016.

First Class with Distinction (CGPA – 8.56)

RMD Sinhgad School of Engineering (SP Pune University)

### Bachelor of Engineering

Electronics and Telecommunication Engineering, 2009 – 2014.

First Class with Distinction (67.20%)

JSPM's Imperial College of Engineering and Research, Pune (SP Pune University)

## PERSONAL DETAILS

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Address	1202/2a-5, Guruprasad, Apte Road, Shivajinagar, Pune - 411004, MH, IN.
Date of Birth	30 <sup>th</sup> May 1991
Gender	Male
Marital status	Married
Languages	English, Hindi, and Marathi
Hobbies	Listening to music and driving

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I hereby declare that all the above information is true and complete to the best of my knowledge.  
(Prasad S. Kale)