

Suraj Swami

<http://sites.google.com/site/surajswamiworkspace/home>

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OBJECTIVE: Seeking a challenging career in Embedded System and Robotics utilizing my skills and experience to advance the goals of an organization.

EDUCATION: **MS in Electrical Engineering**, The University of North Carolina at Charlotte May 2011

BS in Electronics Engineering, Pune University, INDIA May 2008

COURSE PROFILE:

Embedded System	Robotics
Advanced Embedded System	Digital Image Processing
Computer Architecture	Digital Signal Processing
Embedded Chip Multi-Processing	Pattern Recognition
Microprocessors and Microcontroller	Artificial Intelligence
Advanced Microprocessors	Probabilistic Robotics

SKILLS:

Languages: C, C++
Microcontrollers: Renesas, MSP 430, LPC 2138, 8051.
RTOS: uC-OS II, Free RTOS
Linux: Processes, Threads, Inter Process Communication, Socket Programming.
Wireless: WIFI, SimplicTI by TI.
Robotics Hardware: Interfacing motor drivers and Sensors.
Robotics Software: ROS (Robot Operating System), Player Stage.
Image Processing: OpenCv, MATLAB.

WORK EXPERIENCE: **Research Assistant** Oct 09 – May 11
Electrical Engineering, University of North Carolina, Charlotte.

Thesis Topic: Temperature, Strain and Acoustic Emission monitoring of a natural boulder exposed to the sun: a test of the efficacy of insolation on physical weathering.

Sensors : Strain gages, Thermocouple, Acoustic Emission, Weather Station Setup.

Datalogger : Campbell Scientific CR1000, Sensor Highway II by Physical Acoustic System.

Software : MATLAB.

Roles and Responsibilities: .

- o Sensor Calibration and Installation.
- o 3D Modeling of Rock.
- o Data Analysis.

Senior Engineer Jan 09 – Jul 09

[Fennec Fox Technologies, Pune, India.](#)

Nature of Business: Research in Robotics and Embedded System Development.

Roles and Responsibilities:

- o Research on present technologies used in mobile robot.
- o Simulating mobile robot behavior using PLAYER-STAGE (Linux Environment).
- o Write Players Drivers to interface Robots to PLAYER Server.
- o Taking workshops on building basic autonomous robot.
8051 programming, Sensor interfacing, Motor interfacing, ADC.
- o Guided final year project
- Building positon2d (odometry and motor control) interface for PLAYER.

PAPER

PUBLISHED: [Wireless Quiz System](#) (Mar 2010)

The goal of the project was to build a wireless quiz system such that each participants device consumed least amount of power for maximum battery life. Each participant device used only 0.1 uA when powered on and not in used. This will help to have maximum battery life.

Technology: eZ430-RF2500 module consisting of MSP430F2274, RF module CC2500
SimpliciTI.(RF Protocol)

PROJECTS: [WiFi on an Embedded Linux Board](#) (May 2010): Debian Distribution on TS7200 board Linux. This board communicated with any computer in WIFI network. Implemented socket programming.

[Monte Carlo Localization](#) (Robotics) (Dec 2009): Monte Carlo Localization algorithm uses values from sensors like laser scanner or sonar array and the given predefined map to find its location in the given map. This algorithm implements Particle filter algorithm. It uses velocity motion model to generate samples for estimated position and likelihood field range finder model to find the weight of each particle.

[Character Recognition](#) (Dec 2009) : Recognize the digit in the given image using Gaussian Classifier, KNN Classifier and Principal Component Analysis in MATLAB.

[Test Roomba driver of PLAYER / STAGE](#) (Sep 2009): Wrote test codes to test the functionality of different Roomba features using Player / Stage.

[Web Based Controller for HVAC](#) (May 2008): Designed and developed an Embedded Systems DAC for Observing and Controlling different parameters of an HVAC. The HVAC could even be controlled using Internet. Technologies : Embedded C, Philips LPC 2138, VB , ASP.

[SMS Voting Machine](#) (May 2007): Using a 8051 micro-controller, Sony Ericsson phones developed a portable voting system. Technology: AT Commands, Assembly Language Programming, 8051, Keil compiler and simulation.

[Multi-Featured Autonomous Robot](#) (Dec 2006): Autonomous robot using 8051, IR sensor, motor drivers eg L298. Basic obstacle avoidance, path execution programs.

EXTRA CURRICULAR ACTIVITIES: Represented college at ROBOCON 08 an Asia-Pacific event.
- Placed Third
- Won the best Autonomous Robot..

VISA STATUS: F1

REFERENCES: James M. Conrad, Ph.D., P.E., PMP, Associate Professor, Electrical and Computer Engineering, UNC Charlotte. Email: jmconrad@uncc.edu
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