Curriculum Vitae

HITHESH KUMAR GATTY

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Educational Qualification:

Bachelor of Engineering (B.E.)

College	:	Manipal Institute of Technology, Manipal, INDIA
University	:	Mangalore University
Major	:	Electrical Engineering
Grade	:	First Class

Master of Technology (M.Tech.)

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Scholarships:

- 1. Selected for doing Masters in National Institute of Technology Karnataka, Surathkal India with a scholarship of Rs. 5,000/- pm for a period of 2 years.
- 2. Selected on an MIUR fellowship to work on an EU project in University of Bologna, Italy.

Work Experience:

- 1. From September 2006 to August 2007 worked as Research Collaborator in ARCES lab Bologna, Italy.
- 2. From May 2005 to August 2006: Worked as Project Associate in National MEMS Design Centre (N.M.D.C), Indian Institute of Science, Bangalore, India.
- 3. From October 2004 to April 2005: Worked as Lecturer at Manipal Institute of Technology, Manipal, India
- 4. From Jan 2002 to September 2004: Worked as Teaching Assistant while doing my Masters in National Institute of Technology Karnataka, India.

<u>Projects Undertaken at National MEMS Design Centre (NMDC), Bangalore</u> <u>INDIA:</u>

1. Development of an embedded system using an accelerometer and interfacing it with a microcontroller.

This was the Final Year Project of M. Tech which involved the application of a MEMS device (ADXL202) using a microcontroller MC68HC11 in the tilt, vibration and shock measurement to build an embedded system. The real time measurement of the inclination is done by measuring the duty cycle of the square wave-output of ADXL202 in both X and Y-axis. Scaling the duty cycle gives the angle in tilt. To measure shock, the analog output from adxl202 is fed to the on board ADC of HC11 and voltages being measured.

2. RF-switch design, development and characterization.

I was involved in the design of RF switches, a project which was funded by National Program for Smart Materials (NPSM). The switches were designed using MUMPS (Multi User MEMS Process) in National MEMS Design Centre. The devices were simulated using CoventorWare. The RF switches designed were having low pull-in voltage and high insertion of the signal. The testing of the RF switch is under way.

3. Vibration sensor design and development for the application of microphones, and high frequency detection devices.

An acoustic sensor was designed to have a bandwidth of 20 kHz which falls in the audible range. This sensor will be used as a microphone. Various parameter variations were considered and the device was simulated using device simulation softwares. MUMPS process was followed here and the device was sent for fabrication. The sensing circuitry was also designed for the acoustic sensor.

4. Varactor design, development and characterization.

Parametric analysis with different materials like polysilicon, aluminum and gold were considered and the capacitance between the AC plate and the transmission line was found. The simulations were carried out using SABER. Also the variation of air gap from $1.0\mu m$ to $0.75\mu m$ was simulated for polysilicon material and the capacitance was found.

<u>Projects Undertaken at Advanced Research Centre on Electronic</u> Systems(ARCES), Bologna, Italy:

Sub Projects of European Union Project: http://cochise.arces.unibo.it/

1.Development of Multi Axis stage control for Cell dispensing.

This involved the building of Multi-Axis control for single-cell dispensing. The software was built using LABVIEW. The control of the XYZ stage was automated so that the instruments like microscope, stage controller, image processing and alignment of the dispenser was taken into consideration and they were made to work in co-ordination. The main objective of the system is to drop the single cell onto a micro-titer which consists of numerous wells for analysis purpose

2. Modeling and Fabrication of a Microfluidic control system.

2.1 MicroCarrier development for Biological Cell Analysis.

2.2 Realization of Interface MicroFluidics for the MicroCarrier.

The MicroCarrier is used for holding the prototype PCB. The features include multiple use of the Prototype and must have a good electrical contact with the Prototype. The interface for the MicroCarrier to carry the fluid into and out of the systems is designed and fabricated. The system was designed with the help of Fraunhofer Institute which developed the prototype for holding the biological cells for the analysis purpose.

Aptitude Tests

Graduate Aptitude Test for Engineers (GATE) percentile 85.65 TOEFL : 103/120 GRE :1190/1500

Publications:

- 1. "Development of tilt angle measurement unit using ADXL202 and MC68HC11" ISMNT-2006, Taiwan, March 28-31, 2006.
- "Effect of Anchor Placement in RF Switches" Indo-China Conference, April 5-7, 2006. (Poster Presentation)
- 3. "A Novel low actuation voltage RF MEMS switch using the concept of displacement amplification" Indo-China Conference, April 5-7, 2006.
- 4. "A Novel displacement amplification technique to realize low actuation voltage High Isolation RF MEMS Switches" (Under Preparation)

Personal Details:

Date of Birth	:	15 th Jan 1980
Marital status	:	Unmarried
Software skills:		

- 1. Worked on software's like MATLAB, Pspice, Comsol, AUTO-CAD, Lab Veiw and solidworks .
- 2. Knowledge of C, C++, UNIX, Assembly language (8-bit, 16-bit of Intel and Motorola chips).
- 3. MEMS Device level simulation softwares like Intellisuite, CoventorWare.
- 4. Layout Tools like MEMs Pro and LinkCAD
- 5. MEMS System Level software like SABER and electromagnetic analysis softwares like IE3D and HFSS.
- 6. Circuit simulation softwares like Tanner and ORCAD.

Self Appraisal:

Major Strengths

- 1. Persistent and determination to complete a given task.
- 2. Complete involvement in team work.
- 3. Optimistic and have good managerial skills.

Reference:

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