

# Adithya Selvaprithiviraj

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## CONTACT

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## OBJECTIVE

To strive for excellence in research and carryout interdisciplinary research in an exciting intellectual environment.

## EDUCATION

Bachelor of Engineering in  
Electrical and Electronics  
SSN College of Engineering, Chennai

June 2012 — Present

Higher Secondary School  
JGVV Matriculation Higher secondary school, Chennai  
Completed Higher Secondary School with 94 %

June 2011 — April 2012

Senior Secondary School  
JGVV Matriculation Higher secondary school, Chennai  
Completed Senior Secondary School with 92 %

June 2009 — April 2010

## PROJECTS

### **Title: Design and Implementation of Soft Processor on FPGA**

- Developed a soft microprocessor starting from a simple NAND gate with the help Xilinx system generator toolbox using matlab and implemented the design on Spartan 3E FPGA.
- Developed all the necessary sub-modules for programming and debugging the Soft Processor such as, the assembler, VGA interface driver, PS2 Keyboard interface driver.

### **Title: Face expression detector using Support Vector Machine**

- Facial landmarks were detected using dlib library and feature set was extracted from several face datasets.
- Training was done with the obtained feature set using several supervised learning models and their performances were analysed.
- An application was developed to identify the face expression of the person in an image using the trained model.

### **Title: Mobile Robot Path Planning using A\* Algorithm**

- The objective of the project was to make a mobile robot move in a dynamic path and reach the goal point while performing obstacle avoidance.
- The live feed from the camera above the arena was used to process the image (operations like thresholding and dilation were performed) and generate the path using A\* algorithm.
- A PID Controller was designed and implemented for reference tracking.

### **Title: Magnetic Levitation**

- Designed a Prototype of Magnetic Levitation System.
- Implemented Hysteresis Control to achieve magnetic levitation using Spartan 3E FPGA.

### **Title: DSO-ART**

- Implemented mathematical functions on Spartan 3E FPGA and used PWM technique to display basic shapes in a DSO.
- Developed a technique to display any given image in a DSO with the help of image processing and python.

**Title: Kiduino**

- Developed a library for Arduino that would help the kids learn Arduino with an simple Object Oriented approach.
- Developed classes for several Sensor modules like HC-SR04, GP2Y0A02YK0F etc.

**Title: Aero-Pendulum**

- Designed an Aero-Thrust Pendulum.
- Implemented PI and PID algorithm in ATMEGA328 to control the system.

**WORK  
EXPERIENCE****Stealth flash, Ahmedabad****June 2015 — August 2015****Research Intern**

- Worked as a computer vision researcher and developed several modules for 3D image manipulation using OpenNI (For RGBD sensor) and Nite (Middleware) libraries.
- Worked on 3D point cloud formation and reconstruction using laser scanning technique as well as stereo camera pair.

**Adignet Systems, Chennai****December 2014 — March 2015****Research Intern****Aircraft Refueller Top-up Control and Overflow Prevention System**

- Developed a system to sense the fuel level in the refueller.
- Developed a communication protocol which helps the refueller to send the data to the filling station and prevent the overflow with several safety checks like loss of wireless communication(ZIGBEE) and alarm feature.

**Ethical Intelligent Technologies,  
Chennai****June 2014 — August 2014****Research Intern****Hardware Design of GPS/GPRS Diesel Generator Tracking Device with RS232**

- Built a Prototype Device using ATMEGA-328 micro-controller which can act as a MODBUS Master device.
- Developed a firmware to make the device communicate with Diesel generator control panel and also send the information to a cloud server(IoT).

**Simple Labs, Chennai****September 2013 — October 2013****Embedded Systems Intern****RFID based access control system**

- Built a simple RFID card based access control system.
- Also a DTMF based secure access system alternative was developed.

**SKILLS****Languages:**

Python, C++, C, HTML, JS, SHELL.

**Libraries and Frameworks:**

OpenCV, OpenNI, Flask .

**Software Tools:**

VIM, GIT, MATLAB/XILINX, MATLAB/Simulink, PHOTOSHOP.

**Embedded Hardware:**

RaspberryPi, SPARTAN 3E-FPGA, Beagle Bone Black, ATMEL ATmega/ATTiny Micro-controllers, Intel Galileo SOC, TI MSP430 Micro-controllers, Primesense Carmine(RGBD camera).

ONLINE  
COURSES  
COMPLETED

**Introduction to Computer Science and Programming Using Python- MIT**

<https://verify.edx.org/cert/8801a877243f4e9ea795a45956a2c5c0>

**Autonomous Navigation for Flying Robots- Technical University of Munich**

<https://verify.edx.org/cert/233bb294d5074587ace1b93988b3b593>

VOLUNTEER  
EXPERIENCE

**Becoming I Foundation**

**Project Knock Knock**

Project Knock Knock bridged the gap between the economically weaker sections and the access to wholesome education for every child born in this secular country, by sensitizing people and communities about it. As volunteers we reached out to all stakeholders so the government-stipulated window of May 3rd-18th for admission under Right to Education Act is maximized.

ACHIEVEMENTS

- Won 3rd place at Hackathon 'IndiaHacks' conducted by HackerEarth, in Internet of Things track for the project 'Mach Online'.
- Won 1st place in the event 'Rush Hour', a complex line follower robotics event organized during PRAGYAN 2015 an International level Tech Fest, conducted by NIT, Trichy.
- Won 3rd place in the event 'Apollo 18', an image processing based robotics event organized during PRAGYAN 2015 an international level Tech Fest, conducted by NIT, Trichy.
- Won 2nd place in the event 'Kronicles of Mars', an image processing based robotics event organized during KURUKSHETRA 2015 an international level Tech Fest, conducted by Anna University, Chennai.

LEADERSHIP  
ROLES

**Core Member, Electrical Research Fraternity (ERF), SSNCE**

- Organized workshops on Arduino and robotics.

**Head of Design, Association of Electrical and Electronics Engineering(AEEE), SSNCE**

- Headed a team which designed the website for the national level technical symposium Eupraxia 2015.

**Student Organizer, Association of Electrical and Electronics Engineering(AEEE), SSNCE**

- Organized Internet Of Things workshop using Intel Galileo for the national level technical symposium Eupraxia 2015.

**Student Organizer, Association of Electrical and Electronics Engineering(AEEE), SSNCE**

- Organized Arduino workshop for the national level technical symposium Eupraxia 2014.

RESEARCH  
INTERESTS

Artificial Intelligence, Computer Vision, Control theory, Embedded Systems, Interaction Design, Gestural Interaction, Robotics, Machine Learning.