

CONTACT INFORMATION	5686, Forward Avenue, Apt.No. 2, Pittsburgh, PA 15217	smalla@andrew.cmu.edu +1 412-726-3595
RESEARCH INTERESTS	Human Computer Interaction, Mobile Robots, Machine Learning and Computer Vision	
EDUCATION	Vellore Institute of Technology , Vellore, India B.Tech, Electronics and Instrumentation (Major)	<i>Expected:</i> May 2016 CGPA: 8.68/10.0
RESEARCH EXPERIENCE	Research Associate Field Robotics Center, Carnegie Mellon University	Sept 2015 - Present Advisor: Sebastian Scherer
PUBLICATIONS	Boiler Inspection Using Unmanned Aerial Vehicles	
	<ul style="list-style-type: none"> • Creating a Planning algorithm to optimize the flight time of UAV for inspection purposes. • Developing a method to generate way points for effective inspection of the boiler given a 3D map. 	
	Harjatin Singh Baweja, Tanvir Parhar, Srikanth Malla "Gesture Control Interface Using Machine Learning Algorithms." <i>International Journal of Advanced Research in Computer Science and Software Engineering</i> (IJARCSSE), Volume. 5, Issue. 09 (2015) ISSN: 2277-128X. http://goo.gl/BxX6ZC	
COURSE PROJECTS	Vaegae Naveen, Venkata Lakshmi Narayana K, Srikanth Malla "Development of an Intelligent Pressure Measuring Technique for Bellows using Radial Basis Function Neural Network" <i>Sensors and Actuators</i> , A. Physical Drawing planar robotic arm <i>Robotics and Automation</i>	
	Fall 2013 <ul style="list-style-type: none"> • Developed a 3 degrees of planar Robotic Arm. Image Processing is done using Matlab, Image Processing Toolbox. • Used Forward Kinematics to convert Cartesian coordinate space to angular space. • Used Inverse Kinematics to convert Angle feed-back taken using Potentiometer to Cartesian space. Implemented a PID control to control the position of the end effector. 	
	Temperature control of a non-linear system using fuzzy logic <i>Neural Networks and Fuzzy Logic</i>	
RESEARCH PROJECTS	Inventory management robot Texas Instruments Innovation Challenge 2015 <i>Robotics, Computer Vision, Designing, Electronics</i>	
	Mar 2015 - May 2015 <ul style="list-style-type: none"> • Developed a hardware model similar to Co-Bot. Used Kinect sensor for RGBD mapping and localization with the help of RTABMap package. • Developed person following application using Kinect Sensor. • Created a 3 Degrees of Freedom Robotic Arm for the application of picking the objects. 	
	Gesture controlled quadrotor using kinect sensor Advisor: Arul Mozhi Verman, <i>Director</i>	
	Oct 2014 - Dec 2014 <ul style="list-style-type: none"> • Developed a gesture control Interface between Kinect Sensor and Parrot ARDrone. • Used Neural Networks to train the Complex Gestures. 	
	Home automation using leap sensor <i>Won 1st Prize in Makethon 2014, HCI, Embedded Systems</i>	
	Oct 2014 - Dec 2014 <ul style="list-style-type: none"> • Created an interface between Leap Sensor and Arduino (ATMega328) Micro-Controller. • Developed Robust Gesture Control using Time Series Neural Networks. 	
	Person following quadrotor <i>Embedded Systems, Robotics, Android Programming</i>	
	Apr 2014 - July 2014 <ul style="list-style-type: none"> • Developed a Mobile Application(android) to send the GPS co-ordinates to the Quadrotor. • Utilized the Guided Way point Navigation Application with the help of pixhawk 	

	PID tuning of quadrotor <i>Control Systems, Design, Algorithms</i>	https://goo.gl/dod12t Jan 2014 - Mar 2014
	<ul style="list-style-type: none"> Implemented Manual Tuning of PID parameters using Arduino Micro controller. Developed system transfer function for Quadrotor using Matlab System identification Toolbox. Used different algorithms in Matlab, to find the PID parameters and compared them for better response. 	
	Android based digital signal oscilloscope <i>Sensors and Signal Conditioning, Digital Signal Processing</i>	Jan 2014 - Mar 2014
	<ul style="list-style-type: none"> Researched on Micro-Controller's Analog to Digital Converters at different Clock frequencies. Implemented Fast Fourier Transform in Micro-Controller to analyze the frequencies in a real-time signal with a window approach 	
	Linearizing below pressure sensor using radial basis function neural network <i>Soft Computing, Signal Conditioning</i>	Advisor: K V L Narayana Nov 2014 - Jan 2015
	<ul style="list-style-type: none"> Developed and Implemented RBF NN in Micro Controller to substitute signal Conditioning and to give better results than signal conditioning, where results are effected by different factors like change in resistance with temperature. 	
ADDITIONAL PROJECTS	Sphero <i>Robotics, Embedded Systems, Design, 3D Modelling</i>	https://goo.gl/iKLaCD Oct 2013 - Jan 2014
	<ul style="list-style-type: none"> Designed and 3D printed the hardware parts. Created a Mobile Application to control the motion of the Sphero. Programmed Micro-Controller to interface with the Smart Phone using Bluetooth Communication 	
	Fixed wing UAV <i>Aerial Robotics, Telemetry</i>	https://goo.gl/04Etso Jul 2013 - Sep 2013
	<ul style="list-style-type: none"> Created a Live Telemetry Module to get the information like camera feed and send commands using MAV Link Protocol. Automated the Navigation of UAV using Pix Hawk Guided way-point Navigation 	
PROFESSIONAL EXPERIENCE	Industrial Internship South Central Railways, Vijayawada, India	Dec 2014 - Jan 2015 Supervisor: Amuta Prabha
	<ul style="list-style-type: none"> Developed a sensor module(Internet of Things) and web application to monitor the train location.Industrial 	
	Stethostutor, Startup <i>Co-founder, Incubated at Project Olympus, CMU</i>	Sept 2015 - Present Advisor: KitNeedham
	<ul style="list-style-type: none"> Designed an android application (prototype), to make the learning system of stethoscope sounds for doctors and medical students easier and simpler. Currently, working on Fundraising and Marketing Strategies. 	
RELEVANT PROFICIENCIES	Programming Languages: C, C++, Python, Java Software: ROS, OpenCV, MATLAB, Multisim, Solid Works Hardware: Microcontrollers (Arduino/Atmega, MSP 430), UDOO, Raspberry Pi Operating Systems: Windows, Linux/Unix	
RELEVANT COURSES	Core: Computer Programming and Problem Solving, Data Structures and Algorithms, Micro-controllers and its applications, Digital Signal Processing, Sensors and Signal Conditioning, Control Systems, Process Automation, Digital Logic System Design, Probability and Statistics, Applied Mechanics and Thermal Engineering,	Applied Numerical Methods, Complex Variables and Partial Differential Equations. Electives: Robotics and Automation, Neural Networks and Fuzzy Logic, Digital Image Processing, Embedded System Design.

AWARDS AND ACHIEVEMENTS	MHRD Scholarship	2012-Present
	Awarded by Ministry of Human Resources and Development, Central Government of India.	
	<ul style="list-style-type: none"> Achieved 97% score in Senior Secondary School. 	
	Special Achievers Award 2015, VIT University, Vellore, India.	
	1st place for Home Automation using Gestures, Makethon 2014 at VIT-Vellore, An initiative to spur innovations in healthcare & life sciences through co-creation.	
	2nd place in Aqua-bot competition, Gravitas 2013 at VIT- Vellore.	
OUTREACH AND SERVICE	Best Design Award for Seat Belt Design for Pregnant ladies at MIT Hacking Medicine 2015.	
	3rd prize for Fixii, a Spray to Immobilize fractures, Jugaadathon 2014, Bangalore.	
	Field Robotics Center, CMU	Sept 2015 - Present
	Member	
	Event Coordinator	Feb 2015
	Makethon-2015	
	Creation Lab, VIT, Vellore	2013 - 2015
	Coordinator	
	National Service Scheme(NSS)	2014 - 2015
	Student Volunteer	
	IEEE-EDS club, VIT University	2012 - 2013
	Technical Member	