Vishwa Sai Prathyusha

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OBJECTIVE

Interested in exploring the application of engineering concepts and technology to solve high-end challenges in the field of automation in manufacturing and special purpose robotics

EDUCATION

Program	*Institution*	*%/CGPA*	*Year of completion*
Dual Degree: B. Tech. - Mechanical Engineering (M. Tech. - Intelligent Manufacturing)	Indian Institute of Technology Madras, Chennai	8.14/10 (9.42/10)	2016
XII (BIE)	Sri Chaitanya Junior College, Hyderabad	95.2%	2011
X (CBSE)	Kendriya Vidyalaya Sangathan, Anantapur	92%	2009

SCHOLASTIC ACHIEVEMENTS

- Visiting Graduate Research Assistantship at University of Nebraska – Lincoln, USA *(Jan – May 2016)*
- Vidyashree Award winner from Amul India for AISSE performance in 2009
- Received Innovative Student Project Award from IIT Madras for the Intelligent Ground Vehicle project with a funding grant *(Sep 2014 – May 2015)*
- Shortlisted to represent India for Japan Student Exchange Programme (JENESYS) in 2008

SKILLS

Operating Systems	Windows, Ubuntu (Linux)
Software and Programming	MS Office, Arduino, ARIA (Advanced Robotics Interface for Applications), ROS (Robot Operating System), Qt, LabVIEW, B&R Automation Studio and SQL Server; C++ & Python
Core	CAD (AutoCAD, PTC-Creo, ProEngineer and SolidWorks), MATLAB, Simulink, ANSYS FEA and CFD (FLUENT), CNC coding, GD&T and operation of machine tools

PROFESSIONAL EXPERIENCE AND INDUSTRIAL PROJECTS

Position: **Asst. Manager, R&D Micromatic Grinding Technologies Ltd.** **(Jun 2017 – 2019)**	• Leading the team and managing multiple projects in the domains of Design and Analysis, Process Development, and New Product/Technology Development • Working on developing application toolkit for Centerless Grinding, process development for medical core wires and Industry 4.0 solutions for grinders • Supervised internships and coordinated results to extended long-term projects to pursue tangible output through a new industry-academia collaboration
Project: **Automation of Grinding Intelligence (AGI)**	• Directing DHI-funded industry-academia collaboration with AMTDC, IIT Madras • Produced a machine with real-time multi-sensor interfacing capability and high-speed communication between machine's controller and industrial PC • Programmed B&R's PLC for configuring sensors, processing data acquired and logging it into a database in SQL Server • Developed an interface in LabVIEW to demonstrate in-process data acquisition • Co-inventor of copyrighted software for Automation of Grinding Intelligence
Project: **Core Wire Grinding (CWG)**	• Designing process for a medical application of grinding where 2 m long shafts of less than .5 mm diameter are profile-ground in centerless thrufeed grinding set-up • Coordinating design of micro-scaled tooling and auxiliary sensor requirements • Organized cross-functional meetings for project planning and indigenous product development ensuring continuous interaction with prospective customers
Project: **Mechatronics Integrated Solutions**	• Established direct communication with controller through a third-party software, enabling development of Computer-Aided Manufacturing (CAM) module in grinder • Improvised GrindTrak™, in-process diagnostic tool, to a compact and rigid version • Developed an integral CAD/CAM software solution for non-round grinding and profile grinding of complex surfaces such as cam shafts, kneading blocks, etc.

PROJECTS AT IIT MADRAS

Master's Project **Jun 2015 – 2016 (1 year)**	• Modeling of duodenum using **SolidWorks** and **s**imulation of digesta flow dynamics using **ANSYS FLUENT** • Designed an *in vivo* sensor, its sensing mechanism, and its deployment mechanism from a micro-robotic capsule to provide dynamic feedback of mass intake • Developed an **adaptive Model-based Predictive Controller** using **MATLAB and Simulink** as energy-intake suggestor and controller for Weight-Maintenance System
Intelligent Ground Vehicle (IGV) **Jul 2013 - 2016 (3 years)**	• Worked on the modules - Obstacle Avoidance, Path Planning and Localization • Adapted **Vector-Field Histogram (VFH) algorithm** for path planning and simulated it in MobileSim with a custom generated map of the environment • Integrated data obtained from LiDAR scans, odometry from encoders and IMU to generate a map of the environment and localize the robot using **SLAM methods** in **ROS** (Robot Operating System), tuning and customizing the sensors for three different iterations of mechanical design
Formation Control **May - Jul 2013 (8 weeks)**	• Design of a control law for virtual communication of mobile robots to solve the jack-knifing issue of truck-trailer accidents by replacing the mechanical link • Debugged the code of **formation control law** in ARIA (Advanced Robotics Interface for Applications); simulated and tested it real-time on two Pioneer P3DX robots

POSITIONS OF RESPONSIBILITY (IIT MADRAS)

Head, Sahaay (CFI) **Sep 2014 - Jun 2016 (22 months)**	• Spearheaded initiatives to improve outreach, pioneering collaboration with more NGOs to promote the idea of 'Learning with purpose' among more students • Illustrated the need for social innovation by students with the launch of Social Entrepreneurship Club through collaboration of CFI with CSIE, IIT Madras • Mentored successful projects like Advanced Electrolarynx, that bagged multiple awards in its working phase itself, and a Two-wheeler Ambulance
Student Advisory Council Member, NSS **Sep 2014 - 15 (1 year)**	• Reviewed a set of projects undertaken in the academic year with a process of evaluation of their progress, to improve their scope and impact to serve better • Mentored the managerial team as and when necessary in administering the NSS activities • Advocated a project initiative in collaboration with RailTel Corporation of India
Project Administration Team, NSS **Jun 2013 - 14 (1 year)**	• Selected volunteers and project representatives (PRs) based on their interests and motivation to be part of service-oriented projects • Conducted project reviews with the Advisory Council presided by experienced faculty members and erstwhile student members of NSS • Orchestrated four new projects, representing two of them personally, to set-up a centre for learning in the NSS Office and a congenial environment for the same

OTHER ACTIVITIES/ACHIEVEMENTS

- Patented (2017) and received Best Project award (2016) for Advanced Electrolarynx in CFI Annual Tech Awards
- Winner of Industry Defined Problem (IDP) posed by Titan Company for proposing an alternate method for clamping coil core during winding operation (2015)
- Was awarded "Most Enthusiastic Mentor" for the active contribution to the hostel team in Inter-hostel Tech-Soc activities of IIT Madras like manual/autonomous robotic competitions (2011 – 16)

REFERENCES

- Dr. Nitin Chandrachoodan, Associate Professor, Electrical Engineering Department, IIT Madras - Contact
  [Mentored as Faculty Advisor for IGV International Competition]
- Dr. N. Arunachalam, Associate Professor, Mechanical Engineering Department, IIT Madras - Contact
- Dr. P. V. Manivannan, Assistant Professor, Mechanical Engineering Department, IIT Madras - Contact
- Mr. Anant Jain, Former R&D Head, Micromatic Grinding Technologies Limited, Bangalore

RELEVANT COURSES (GRADES: S = 92+%; A = 85% - 92%)

- Modeling and Simulation in Manufacturing (S)
- Microprocessors in Automation (S)
- Sensors for Intelligent Manufacturing (S)
- Machine Vision and its Applications (A)
- Mechatronic Systems (A)
- Prognostics and Health Management of Machines (A)