AISHWARIAA V IYER

Post graduate
B - 103, Dugar Estate 89 CTH Road Ambattur ,Chennai, Tamilnadu ,India -600053
+91 7448719336 | aishwariaaviyer@gmail.com

Education

2020 - Present	Industrial Automation & Robotics, Dept. of Mechatronics M.Tech 2YR Manipal Institute of Technology Udipi, India	CGPA: 7.48 / 10
2016 - 2020	Mechatronics, Dept. of Mechanical Engineering B.Tech 4Yr SASTRA Deemed To Be University Thanjavur, India	CGPA: 7.62 / 10
March 2016	All India Senior Secondary Certificate Examination (CBSE) Velammal Vidyalaya Mel Ayanambakkam, Chennai, India	Percent: 86 %
March 2014	All India Secondary School Certificate Examination (CBSE) Velammal Vidyalaya Mel Ayanambakkam, Chennai, India	CGPA: 10 / 10

B Tech project

Robotic Arm Control Using Virtual Reality *December 2019 - July 2020*
Mentor: DR S.Rakesh Kumar, Dept. of EEE, SASTRA Deemed To Be University

- Developing an algorithm to access a Robotic Manipulator Arm using UNITY software
- The Robotic Manipulator model with its joints having 6 DOF is made using 3D modelling software
- This model is imported in UNITY software and an inverse kinematics for this model is created using C# script
- The end effector of the robotic arm is controlled using Oculus rift
- The position and angle of each joints of the virtual model is the output of the Unity is given to robotic arm
- **Key Learning:** UNITY software , Blender app, MATLAB

Training

Implant Training - I *May 2019*

- Attended inplant training at M/S.ARROW MACHINE TOOLS, Ambattur, Chennai -600053
- Manufacturers of Single Spindle Automatic lathes,CNC lathes ,SPMs & Automations
- Hands on training at quality department using measuring instruments like Vernier Callipers , Hardness Tester etc
- Training in machine shop on various machines like all gear lathes, CNC lathes ,VMC, Shaping machine, Milling machine, Drilling machine, Surface grinding, Cylindrical grinding machines

Implant Training - II *Nov 2019*

- Attended inplant training at M/S.ARROW MACHINE TOOLS, Ambattur, Chennai - 600053
- Gained knowledge on assembly of machines like spindle assembly with bearings, gear, motor & pulley assembly
- Enriched knowledge on assembly of CNC lathes by visual inspection of various parts such as linear guideways for slide movement , ground ball screws, servo motor, drive and couplings ,CNC control like FANUC /SIEMENS/GSK
- Seen job clamping hydraulic chucks, cylinder, power pack, tool holding in 8 station turret & hydraulic tail stock
- Assembly of pick and place automation on CNC lathes using pneumatic cylinder (FESTO/SMC), grippers, solenoid valve, PLC & HMI

Mini Projects

Autonomous Bot Navigation *May 2021 - June 2021*
Mentor: Prof. Pooja Nag , Asha C S ,Maithri M, Sivayazi Kappagantula, Department of Mechatronics Engineering

- Developed a Simulation on ROS platform for the purpose of Autonomous Navigation
- The Virtual Model of Turtlebot3 Waffle Pi is imported to ROS platform by SPAWN Launch
- The Map Generation and Localization is done using SLAM Launch

- By using Build Editor a wall is created in Gazebo and reflected in RVIZ Simulator
- With the help of map path is planned for the Bot to navigate autonomously with constraints
- **Key Learning:** ROS ,Gazebo, Rviz, SLAM .AMCL,Gmapping ,Turtlebot3 Waffle Pi

Multipurpose bot *Jan 2021 - Feb 2021*
Mentor: Prof. Pooja Nag, Department of Mechatronics

- Developed a prototype of an Agricultural based multi purpose bot used for alertness in agricultural field which is controlled by sensors & motors
- There are 3 purpose for which the solution is carried out
- First is a moisture sensor which detects the surroundings moisture and if its is dry water is supplied to the field
- Second is an alcohol sensor which detect the presence and provide a warning to the motor shaft to get automatically off
- Third is the buzzer sensor which provides an alarm when presence of animal is encountered inside the field
- The 3 different purposes is incorporated in the same robot
- The Bot is controlled by Arduino Board
- **Key Learning:** Moisture Control, Arduino Control, Automation

4 Way Traffic Signal Control using PLC *Jan 2021 - Feb 2021*
Mentor: Prof. Vijay Kumar Pandey & Shivashankarayya Hiremath, Department of Mechatronics Engineering

- Developed a prototype of 4 way traffic signal which is controlled using PLC.
- Timers are used to give time delay for output to turn on and off.
- To run the program continuously reset using timer bit is done at the end
- The code is programmed in Indraworks PLc Logic.
- **Key Learning:** PLC Control, Ladder logic Implementation

Automation For Cooking *July 2019 - October 2019*
Mentor: Prof. DR S Rakesh Kumar, Department of EEE

- Developed a prototype of an Automated cooking vessel which is controlled by temperature sensors & servo motors
- The servo motor is placed on the induction stove near plus and minus buttons and the vessel is kept on the stove
- The DTH11 (temperature sensor) is mounted on the vessel top
- The servo motor and the DTH11 sensor are connected to Arduino board using jumper wires
- The servo motor presses the plus button to increase the temperature based on the variation of values and another servo motor presses the minus button to decrease the temperature values
- The vessel stirrer is coupled with DC motor on it for Rotation at Constant Speed.
- DC motor is also controlled by Arduino board
- **Key Learning:** Temperature Control, Humidity Control, Automation

3 DOF Robotic Manipulator *March 2019 - April 2019*
Mentor: Prof. DR Anjan Kumar Dash, Design Of Mechatronics System course

- Developed an algorithm to move the end effector at a given angle of a robotic manipulator
- Robotic manipulator is made using the servo motors and each motors are connected using strips
- MATLAB coding is done for providing the transformation matrix of end effector
- Servo motor working is controlled by Arduino coding
- **Key Learning:** MATLAB, Arduino ,Robotic Manipulator

Journal Papers

Robotics Arm Dynamics & Simulation Using Virtual Reality Model *Jan 2020 - Feb 2020*

- This Conference Paper was read and understood
- A Dynamic model is designed and Virtual Reality Model is built for the system
- A simulation module is built using SIMULINK and control system is applied to it
- The Virtual Model is created in 3D software and A Robot was built using closed loop system
- **Key Learning:** Robotic Arm, Dynamic Model, Simulation, Virtual Reality (VR)

Optimizing The Robotic Arm Movement Using VR Teaching *Dec 2019 - Jan 2020*

- This article in *International Journal of Simulation Modelling* was read and understood
- An integrated 3D simulation software and Virtual Reality(VR) system is developed to simplify and speed up the task and thereby enhancing the quality of manufacturing process
- **Key Learning:** Simulation, Virtual Reality (VR)

Technical Skills

Languages	C, C++, LaTeX
Softwares	SolidWorks, MATLAB, Unity, Blender, LABVIEW, PRO E, CAD ,SIMULINK, Arduino, ROS, Gazebo, Rviz, Keil

Coursework

- Sensors Drives & Actuators for Industrial Automation [L]
- Analog & Digital Electronics
- Digital Manufacturing
- Ethics Technogy & Engineering [M]
- Fluid Power System for Automation [L]
- Artificial Intlligence & Expert Systems
- Embedded System For Automation [L]
- PLC & MPS [L]
- Robotics Kinematics & Dynamics
- Research Methodology & Technical Communication
- Motion Control & Path Planning
- Machine Vision& Image Processing
- Robotics [L]
- Industrial Internet of Things [L]

[L] - course with a lab component [M] - MOOC course

Workshops

3D Printing & SolidWorks Workshop *March 2018*

- Hands on training was provided on the machines in which a 3D model is modelled using *SolidWorks* and printed

Academic Achievements

Department Subject Topper-DESIGN FOR MANUFACTURE *June 2019*
Mechatronics Department, SASTRA Deemed To Be University

- *Design for Manufacture* subject topper in 7 th semester among the *2020* pass out batch of Mechatronics Department

Extra-Curricular Activities

- Proficiency in *German* Language upto level-A2
- Hobbies: Singing, Playing Badminton