SanthanaKrishnan K

9080649623

krishnan26.kn@gmail.com

https://github.com/santhanakrishnan26

https://www.linkedin.com/in/santhana-krishnan-krishnamoorthy-813638172/

Summary

I am a very passionate Robotics Engineer, who is very eager to learn and explore Robotics . I strive for excellence and perfection in whatever task I am assigned to do. I am also a highly adaptable team player who likes to help my colleagues always to get the maximum work from them.

Education

- **SASTRA Deemed University, Thanjavur: B.Tech Mechatronics -** 8.1+ GPA
- **Nadar Higher Secondary School, Rajapalayam: HSC -** Graduated with 93.9%
- **Nadar Higher Secondary School, Rajapalayam: SSLC -** Graduated with 97.8%

Experience

- **Robotics Software Engineer (R & D), Haul Automation (Srinar Electronics R & D) :**
  Jan 2022 - present
  - Working on the development of navigation stack, motion planning and mapping algorithms for AMRs.
  - Handling the development of an autonomous manipulator for automated fuel filling of fuel tanker trucks using Computer Vision and ROS.
  - Working on Embedded systems and Hardware integrations.
  - Hands-on experience with Roboteq motor controller, Sick lidars, encoders, Intel real sense and zed RGB D cameras.

- **Mechatronics System Design Engineer, AUXO Technology Labs :**
  July 2021 - Dec 2021
  - Worked on design and development of an autonomous mobile robot for agriculture applications using ROS, ROS2.
  - Development of smart mechatronics systems for kitchen automation and for medical applications.
  - Hands-on experience with the ESP32, Raspberry pi 4B, various sensors and actuators.

- **Mechatronics Intern at TVS Automobile Solutions:** **Mar 2021 – June 2021**
  - Worked on a project for decoding the CAN data from the Automobile's ECU for

predictive maintenance.
    - Developed a method to automatically process the raw CAN data to get the required information.
- **Data Science Intern at N Stores:** **Mar 2020 – June 2020**
    - Worked on an OCR (Optical Character Recognition) module which can extract unstructured text from images and make it into a readable structured information.
- **IoT and Robotics Intern at SASTRA-TBI** **Apr 2019 – May 2019**
    - Learned from industry experts about product development, IoT, 3D printing and Robotics.
    - Used those skills to Work on a Seeding Robot prototype controlled by a mobile application.

Certifications

- Modern Robotics: Foundation of Robot Motion by Northwestern University on Coursera: Certificate
- Deep Learning Specialization on Coursera: Certificate
- Scientific computing using MATLAB on NPTEL: Certificate

Projects

- **Smart Surveillance Robot**
    - A mobile robot that can autonomously patrol around a protected area, it can detect intruders and provide real-time intruder alerts.
    - Created a node which requests the navigation stack to patrol and subscribe to the image topic which is used by the Yolo model to detect intruders,
    - Demo Video: Click here
- **Autonomous Manipulator for Fuel filling**
    - This project is to fill the oil tanker trucks automatically without the physical effort of the drivers. This reduces the driver's workload by taking care of the handling of the heavy fuel hose, latching, valves and other details such as number of compartments, amount and type of fuel that needs to be filled.
    - The manipulator has a RGBD camera, with computer vision techniques; valves can be detected with x,y,z coordinates. We have multiple encoders, proximity sensors for feedback.
    - The whole stack is written using ROS.
- **Intelligent Floor Cleaning Mobile Robot**
    - This mobile robot uses the CCPP algorithm to cover the irregularly shaped space from the map and it also can navigate through the workspace with the help of Navigation Stack and AMCL localization algorithm.
    - Demo Video: Click here
- **Autonomous Serial Manipulator**
    - Developed a robotic arm that can perform pick and place the objects autonomously with the help of inverse kinematics and Image processing techniques like shape approximation, perceptive transformation, contour detection.
    - Documentation: Mini Project.pdf | Demo Video: Click here
- **Driver Drowsiness Detection System**

- This system works on a Deep Learning model composed of FaceNet, MTCNN and a custom CNN.
- It is trained over 100K image data collected from TVS employees. It determines the state of the driver by continuously monitoring his/her various facial features.
- It can automatically detect the drowsiness of the driver and alert him/her to ensure safety.
- Demo video: Click here

- **Agri Seeding Robot**
  - Designed and Fabricated an IoT based Seeding Robot prototype, which can automate the repetitive manual seeding process with a custom made 3D printed seeding mechanism.
  - For more info: seeding_robot_prototype.docx

Skills

C++, Python, ROS, ROS2, SLAM , Path planning, MATLAB, Computer Vision, Deep Learning, Arduino, ESP32.

Interests

Mobile Robotics, SLAM, Localization, Navigation, AI.