

Soofiyana Atar

github.com/Soofiyana | linkedin.com/in/soofiyana-atar/ | soofiyana.a@somaiya.edu

EXPERIENCE

ATOS | PROJECT TRAINEE

Jul 2019 - August 2019 | Mumbai, India

- Developed wind turbine defects detection Deep learning technique using "Faster RCNN" algorithm by identifying the type of the defect which was implemented with "tensor-flow object detection API" using Python.
- Data was collected through various websites and from Wind turbine companies.

FACLON LABS | EMBEDDED INTERN

May 2019 – July 2019 | Mumbai, India

- Developed e-Rickshaw IoT Charging station which was interfaced by touch screen display, all the owner's data was sent to cloud using CAN, RS-485 communication protocols on Quectel MC60 micro controller.
- Developed a "SMS" controlled motor by using some commands the user can switch the motor on or off.
- Developed a temperature measuring device which sends data to the owner(on the cloud) using MQTT protocol.

EYANTRA ROBOTICS COMPETITION |

EMBEDDED PROGRAMMER

August 2018 – May 2019 | IIT Bombay, India

- E-Yantra is a National robotics competition and I worked on Wheeled locomotion and Computational Motion Planning. It was held at IIT, Bombay.
- In this competition we have to work on a particular theme with different tasks involved in it.

TEAM K.J.S.C.E ROBOCON | EMBEDDED

PROGRAMMER

May 2017 – June 2019 | Mumbai, India

- Team K.J.S.C.E. Robocon is the official Robotics team of our college which takes part in ABU Robocon competition which is an international Robotics competition.
- In 2018-19 edition, I was the Senior Embedded programmer for the team and also worked on Perception, legged robotics, Autonomous Locomotion, ARM Micro controller, Wheeled Mobile robotics, Embedded systems, Computational Motion planning. In 2017-18 it was held at MIT, Pune. In 2019 it was held at IIT, Delhi.

TRAINING FOR VIRTUAL LABS | PROGRAMMER

January 2019 – February 2019 | Aurangabad, India

- Virtual Labs is a project initiated by the Ministry of Human Resource Development, Government of India, under the National Mission on Education through Information and Communication Technology. Achieved silver certificate for this workshop.
- Our virtual lab is also hosted on Virtual labs website.

E-YANTRA INTERNSHIP | EMBEDDED INTERN

July 2018 – July 2018 | Mumbai, India

- Developed algorithm to remove noise from a "MPU 6050" sensor by using I2C communication for interfacing it with Atmega 2560 and using complimentary filter.
- This internship was in house internship organized by K.J. Somaiya College of engineering.

EDUCATION

K.J. SOMAIYA COLLEGE OF ENGINEERING

B.TECH IN ELECTRONICS AND TELECOMMUNICATION
ENGINEERING | CGPA : 8.2/10.0
March,2016 - May,2020 | Mumbai, India

SWAMI VIVEKANAND JUNIOR COLLEGE

H.S.C.| PERCENTAGE: 86/100
June,2014 - July,2016 | Mumbai, India

SWAMI VIVEKANAND HIGH SCHOOL

S.S.C. | PERCENTAGE: 88.6/100
June 2013 - March,2014 | Mumbai, India

KEY SKILLS

TECHNICAL SKILLS

Programming Language : Python, C, C++, Octave, Embedded C
Web Based Language : HTML, CSS, Javascript
Embedded platforms : ARM, STM32F4, AVR, Arduino, Quectel MC60
Microprocessors : Raspberry pi, Jetson Nano
Operating systems : Ubuntu, Macos, Windows
Meta-operating system : ROS(Robot Operating system)
Software : Atmel studio, STM32CubeMX, MATLAB, Eclipse
Simulation software : VREP, Gazebo
Communication protocol : USART, I2C, SPI, RS-485, CAN
Other skills : OpenCV, Deep learning, Machine learning, Computer vision

HONORS AND AWARDS

WINNER IN EYANTRA ROBOTICS COMPETITION 2018-19

3RD PRIZE AMONGST 12681 PARTICIPANTS.

5TH RANK IN ABU ROBOCON COMPETITION 2018-19

WON SPRINGER AWARD FOR BEING IN TOP 8 TEAMS

WINNER IN FIND-A-WAY-FADE-AWAY COMPETITION

HELD AT K.J. SOMAIYA COLLEGE OF ENGINEERING

QUALIFIED FOR NATIONAL LEVEL IN EYANTRA IDEAS COMPETITION

CURRENTLY THE COMPETITION IS YET NOT COMPLETED

QUALIFIED FOR SEMI-FINAL ROUND OF TEXAS COMPETITION

CURRENTLY THE COMPETITION IS YET NOT COMPLETED

EXTRA CURRICULAR ACTIVITIES

- Team member of Kabaddi team of K.J. Somaiya college of engineering.
- Finalist of Box cricket tournament at "Skream" event of our college.

PROJECTS

AMPHIBIOUS SURVEILLANCE ROBOT

Developed Self Balancing Amphibious Surveillance Robot which traverse autonomously and it is also made to be terrain proof. This bot has threat detection capability, audio and video live streaming, foot steps detection, object tracking, chat bot and dynamic path planning. This bot traverse using 2d Lidar, Stereo camera, Camera, IMU and small Infrared sensors. This robot is controlled through Jetson nano and Atmega 328p. [Drive link](#)

HACKING DRONES IN THE VICINITY OF GOVERNMENT AUTHORITIES

This project was made to hack drones which come in the vicinity of the airport and take down these drones. We first determine the frequency range in which it is working and then using jammers we take them down, but if it is autonomous we bombard micro drones on that autonomous drone. [Drive link](#)

PHOTO TRANSISTOR ARRAY WITH SPI COMMUNICATION FOR ROBOT SENSING

Presented at IEEE 5th International Conference for Convergence in Technology 2019, Pune, India 29th - 31st March 2019. Designed the photo transistor array with SPI communication for line following algorithm which was interfaced using STM32F4 micro controller.

4 LEGGED ROBOT WITH AUTONOMOUS LOCOMOTION WITH LQR IMPLEMENTATION FOR GAIT ANALYSIS USING PNEUMATIC ACTUATORS

ABU Robocon 2018-19

Developed autonomous quadruped robot which navigates using 2D Lidar, Stereo Camera, IMU and pneumatic actuator. It was controlled using STM32f4 micro controller and Raspberry pi microprocessor. [Drive link](#)

SWERVE DRIVE CONTROLLED BY CUSTOMIZED CONTROLLER FOR SEMI-AUTONOMOUS LOCO-MOTION USING KINEMATICS EQUATIONS AND PID CONTROLLER

ABU Robocon 2018-19

Developed manual swerve drive which does some specific tasks and it drives itself autonomously for some specific paths for faster traversal. It also uses STM32F4 Micro controller, ultrasound sensor, SICK Laser, Amp flow Motors and loss during locomotion is lesser in this drive than holonomic drives. [Drive link](#)

THREE WHEEL SUSPENSION HOLONOMIC DRIVE WITH AUTONOMOUS LOCOMOTION WITH LQR IMPLEMENTATION FOR POSITION AND VELOCITY CONTROL

ABU Robocon 2017-18

Developed autonomous three wheeled holonomic robot which navigates using SICK Laser, IMU and ultrasound sensor. It was controlled using STM32f4 micro controller. This robot being holonomic has an advantage of ease locomotion as compared to non-holonomic drives.

SIFT DESCRIPTOR FOR MATCHING IMAGES

This descriptor was used to detect the position in the given map by matching the pre-stored image and the image taken on board by the bot so that it can act according to the matched template. It works for many other application where we want to match two templates and apply corresponding action to it.

SMART SHOES WITH SELF LACING CAPABILITIES

In this project I implemented self lacing functionality with inbuilt pedometer(pedometer means a device which counts steps). It uses MPU6050 sensor(6axis sensor which gives reading of gyroscope and angular acceleration along with flex sensor for precise detection of steps. It uses planetary geared motor for high torque requirement with low speed output. I used Atmega 328p micro-controller for controlling all the peripherals.

CERVICAL TRAINER

This project was made for people with neck or head problems. We have used MPU9250(9 axis sensor includes gyroscope, acceleration and magnetometer readings). We created an communication between Bluetooth and the Computer where GUI was been played using python programming language. We also made it more feasible by enabling WiFi functionality, thus doctors can train their patients remotely using the webcam from camera. [GitHub link](#)

2 WHEEL DRIVE SIMULATION ON V-REP

2 wheel drive with castor wheel was implemented on V-REP simulator with Line following algorithm using LQR control. In this project I used 2 wheel drive system and using Kinematics equation I used LQR control to precisely control the bot to follow the black line path. [Drive link](#)

HAND NUMBER RECOGNITION FOR GESTURE CONTROLLED ROBOT

I implemented YOLO algorithm using Python programming language with scikit-learn libraries. Then send the classification of hand numbers through Bluetooth to the robot. The robot is then controlled by sending particular direction for corresponding numbers classified by the algorithm using Bluetooth.