SAMSIL AREFIN MOZUMDER

China University of Mining and Technology

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EDUCATION

Master of Science in Mechanical Engineering, School of Mechatronics, (2022 -2025)
China University of Mining and Technology (CUMT), Xuzhou, Jiangsu, China
CGPA:4.5/5 (90%)

Bachelor of Science in Electrical and Electronic Engineering, (2018 - 2020)
East Delta University (EDU), Chattogram, Bangladesh
CGPA: 3.26/4 (86%)

Diploma in Electronics Technology, (2013 - 2017)
Chattogram Polytechnic Institute (CPI), Chattogram, Bangladesh
CGPA: 3.12/4 (62%)

RESEARCH INTERESTS

Electronics |Embedded ML |Edge AI | Computer Vision | Robotics | IoT| Indoor localization | Sensors

PUBLICATIONS

Journals:

1.	Sharifuzzaman Sagar, A. S. M., **Mozumder, S. A**., Yu Chen, Eesun moon, & Hyung Seok Kim. **An GP-Enhanced Non-linear function and Bayesian Conv-BLSTM based UWB range error mitigation method for LOS and NLOS Scenarios.** (Under Review)
2.	Chi Ma, **Mozumder, S. A**., Md Mahbub Hossen, Manman Shao, & Yuqiang Jiang. (2024). **Research on Vertical Shaft Detection System Based on CMOS-Camera and Lidar.** *IEEE Access*, 10.1109/ACCESS.2024.3420888.

Conference Proceedings:

1.	Yuqiang Jiang, **Mozumder, S. A**, Chi Ma, & Md Abdur Rob, A. S. M. (2024). **Derailment detection of mining shaft's rail vehicle using machine vision on edge device.** In *3rd International Conference on Innovations and Development of Information Technologies and Robotics* (pp. 27-31). IEEE, Hong Kong, China.
2.	**Mozumder, S. A.,** & Sharifuzzaman Sagar, A. S. M. (2022). **IRHA: An Intelligent RSSI Based Home Automation System.** In *International Conference on Ubiquitous Computing and Intelligent Information Systems* (pp. 163-176). Springer, Tamil Nadu, India.
3.	**Mozumder, S. A**., & Sharifuzzaman Sagar, A. S. M. (2022). **Smart IoT Biofloc Water Management System Using Decision Regression Tree.** In *Proceedings of International Conference on Fourth Industrial Revolution and Beyond 2021* (pp. 229-241). Springer, Dhaka, Bangladesh.

Master's Thesis:
Intelligent Inspection System for Anomaly Detection in Mining Rail Infrastructure.
Bachelor's Project:
Mini CNC Plotter

RESEARCH EXPERIENCE

Intelligent Inspection System for Anomaly Detection in Mining Rail Infrastructure

- Supervisor: Dr. Chi Ma and Dr. Yuqiang Jiang

An GP-Enhanced Non-linear function and Bayesian Conv-BLSTM based UWB range error mitigation method for LOS and NLOS Scenarios

- Associate Researcher: A. S. M. Sharifuzzaman Sagar

Research on Vertical Shaft Detection System Based on CMOS-Camera and Lidar

- Supervisor: Dr. Chi Ma and Dr. Yuqiang Jiang

Derailment Detection of Mining Shaft's Rail Vehicle using Machine Vision on Edge Device

- Supervisor: Dr. Chi Ma and Dr. Yuqiang Jiang

IRHA: An Intelligent RSSI Based Home Automation System

- Associate Researcher: A. S. M. Sharifuzzaman Sagar

Smart IoT Biofloc Water Management System Using Decision Regression Tree

- Associate Researcher: A. S. M. Sharifuzzaman Sagar

Mini CNC Plotter

- Supervisor: Baqi Billah

PROJECTS

Electronics Projects (Analog)

- Implementation of NO, NC only using BJT
- Relay Switching, Water level Indicator, FM Transmitter, Dark Switch
- Timer Circuit, Wave Generator, Auto Water Pump, Clap Circuit
- FM Transmitter, AM Receiver, Relay Switching (Using LM 386, ULN2003)
- Motor Driver Circuit (Using L293D, L298N, TIP 120, TIP 122, IRFZ44)
- Various Sensor Interfacing Circuit (LDR, IR Sensor, MQ Sensors and etc.)

Embedded Systems Projects

- Rubik's Cube Solver Robot
- Mini CNC plotter
- Voice Control Robot (With 5 Commands)
- Digital Height Measuring Device
- IoT Based Home and Campus Automation
- IoT Weather Station
- Automatic Water Bottle Filling Machine
- Electronic Voting Machine
- Interactive Traffic Management System & Realtime Monitoring
- Smart IoT bin (Auto Lid Opening, Visual-Verbal Greeting, Trash Level Monitoring, and Notification Through GSM)
- LoRa Remote Data Acquisition System

Embedded ML Projects

- Smart Bio-floc water monitoring system using IoT.
- Artificial Intelligence for Ultra-Wideband Range Error Mitigation: Improving LOS/NLOS Performance in Indoor Environments
- An intelligent home automation system using machine learning and indoor positioning.

Deep Learning based Computer Vision Projects

- Mining rail vehicle (off-track/on-track) detection using yolov5n on Raspberry Pi
- Face Recognition and Temperature Detection Based Automatic Gate
- Face Mask Detection Based Automatic Gate

PROFESSIONAL EXPERIENCE

China University of Mining and Technology (CUMT) 2022 - Present
Research Assistant, School of Mechatronics

OPSEED CO., (BD) LTD 2020 - 2021
Deputy Field Controller, Department of Engineering

Projects:

- Automatic Ionized Air Blower
- Reverse Harness Detector
- Heat Shrink Tube Cutter Machine Modification.
- Sound Check Tester Modification
- Bend Product Check Tester

INDUSTRIAL ATTACTHMENT

Shah Amanat International Airport Chattogram, Communication and Engineering (3 Months) 2017

ACADEMIC HONORS AND AWARDS

- **Chinese Government Scholarship - CSC** 2022-2025
- **Dean List – East Delta University** Summer 2020
- **Dean List – East Delta University** Fall 2020

TECHNICAL SKILLS & COMPETENCES

- Electronics, Embedded ML, Machine Vision, Internet of Things (IoT), Robotics.
- Circuit Design, PCB Design & Very Good at Soldering
- Raspberry Pi, STM32, ESP32, Arduino
- C, C++, Python
- OpenCV, Yolov5, Yolov8, SSD
- NumPy, Scikit-learn, Pandas
- Appropriate Prompting
- Able to plan projects and organize tasks effectively.
- Ability to resolve problems independently & flexible with working hours

LANGUAGE SKILLS

Native Language: Bengali

Other language: English-Fluent

EXTRACURRICULAR ACTIVITIES AND COMMUNITY WORK

- Research Assistant at **Alhazen Lab** Home (google.com) which works for the education of school students in Robotics and Internet of Things.
- Works as a volunteer in Bangladesh Arduino and Microcontroller Learning Group | Facebook.