Profile

- **Facebook:** https://www.facebook.com/Hasemi.Rafsan.849/
- **YouTube:** https://www.youtube.com/channel/UCCeFDFkFbcEpZzHHkaL9iYg/vi
- **Github Link:** https://github.com/Rafsan12345
- **Linkedin:** https://www.linkedin.com/in/md-hasemi-rafsan-0a4137268/?jobid=1234

Contact

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Md. Hasemi Rafsan Jani Shohan

Embedded System Engineer

WORK EXPERIENCE

IICT, BUET

- Research Engineer (Embedded System Section) November 2023 - Present
- Research Assistant (Embedded System Section) June 2023 - October 2023
- Teaching Assistant(Advance Embedded System Design Course ICT6641) January 2023 - June 2023

Digital Innovation Company LTD (Kingdom of Saudi arabia)

- Embedded System Engineer (Remote)
  August 2024 - October 2024

Developer (Embedded System)

- Embedded System Developer
  January 2016 - January 2022

EDUCATION

BSc in EEE
Daffodil International University (2019 - 2022)
CGPA 3.18

Diploma in HVAC/RAC

Thakurgaon polytechnic institute
(2015 - 2018)

HOBBIES

Microcontroller
Robotics
Internet of things (IOT)
Machine Learning and Ai
Computer Vision

Religion Status
ISLAM

NATIONALITY
BANGLADESHI

MARRED STATUS
UNMARRED

ADDRESS
DHAKA, BANGLADESH

DATE OF BIRTH
20-02-1997

AGE
27

SKILLS

- Robotics,
- Embedded Systems,
- Embedded AI & ML,(Neurona, Tiny ml, Linear model, Tensor-flow light, MLP topologie,)
- IOT (Internet of things)[AP,ST,API,MQTT,ADAFRUIT.io, Arduiino.cc, Blynk, Things speak and Local server, port forwarding, IFTTT, Web Server]
- Computer Vision,
- Embedded Control Software Development,
- Embedded Control Apps Development,
- Embedded Control Library Development,
- Electrical Automation and design,
- VLSI and PCB Design(Altium, Easy-Eda) .
- C/C++ and Micropython ,
- Python
- Image processing.
- Real-Time Operating Systems(RTOS) on ARM and AVR.
- Digital forensics.
- UART , SPI , I2C Protocols.
- Bare-metal or Register level programming.
- STM32 (f1-f4), ESP01/32/8266 , AVR AT16/AT32 , PIC 18F77A, Arduino uno/mega/nano/Ble sense 33 . Raspberry Pi 3B, Raspberry Pi Pico,
- Micropython for Embedded system (Thony IDE, Raspberry Pi)
- Autocad electrical 2D 2020
- Modbus Communication RS485
- Embedded Security with AVR on fuse and lock bits
- PLC (BASICS)
- USB HID, UDF, MSD and VCP Devices Development.
- Various Display(LCD, GLCD,Dwin-HMI-LCD,LCD-TFT,LVGL, DOT-Matrix,)

Custom project Development:

1. Innovation of a Device for Identifying Digital Rigging Devices in the Exam Halls LINK
2. “Digital Overload Protector” Design and Implement based project(Set, Reset, Auto Reset, Auto Set from previous set value, and Ability to delay taking action). LINK
3. Image processing data conversion model for GOVT primary assistant teacher recruit Exam 2023.
4. Internet of Things-based Smart Switching and Controlling Module with Computer Vision LINK

Research and Prototype project Development :

Microcontroller Project:

- Signal Receive And analysis and Controlling From Analog And Digital Sensors.
- Led Controlling Analysis Project By Using Microcontroller
- Analog Input Output and Digital Input Output signal Receiving and Controlling and Provide by Using Microcontroller
- Bluetooth based (Home appliance) Control Project by Using HCO5,Mobile App.
- Different Communication protocols project (UART,I2C,SPI) by Using Microcontroller .
- IR(TV) Remote Making and Remote Control Home Appliances by Using Microcontroller
- Fire Flame Detector project by Using ATMEGA328P(Arduino Uno R3),IR Receiver Sensor.
- GSM(sms and call) based load control Project by SIM800 Module.
- Load Control By PC Or Laptop use UART Communication Protocols Project.
- LCD and 7 Segment Display Operating Project .
- PWM technique Project by Using Microcontroller
- WIFI Jammer and Repeater Making Project.
- Arduino Board Making Project on BreadBoard.
- Fire Switch Project(Turn On and off This fire) .
- Signal’s Frequency identifier Project by Using Microcontroller
- LDR Sensor based Automation Project.
- 11KV/400V 2D Substation Design Project in Autocad Electrical For Engineering Drawing(EEE336) Subject’s Final Project.
- Bridge Rectifier Based Power Supply’s PCB Design Project in Proteus.
- Password Based Load On Off Project by Using Microcontroller ATMEGA328P(Arduino Uno R3).
- Physical Signal To Electrical Signal Converting and Viewing With Signal Plotter Project.

- Software Based (EEE) Math Solving and Conversation Chart(pressure,Temperature,length,Area) Making Project in MS Excel.
- Digital , Analog and PWM Signal Read Write Analysis And Their Controlling.
- Digital Watch Making Project Since 2 March 2022 .
- Digital Luxmeter Making Project by LDR.
- Digital Volt meter and Unknown Resistance Finding Meter Making Project.
- IR remote Control and Bluetooth Based DC Voltage Dimmer Controlling Module .
- Home Made PLC Module Developing and their control-based on Ladder Diagram.
- I have created an “Embedded C++ library” called “EasyArduino.h” for ease of use, similar to the popular Arduino coding reference in PIC Microcontroller Activity.
- MODBUS Communication Activity.
- AVR and PIC Microcontroller activity.

Link: https://github.com/Rafsan12345/Micro-Controller-.git

Machine learning and Hardware Data Collecting based Project

- Using Coolterm Software for data analysis and collecting ,
- Using Microsoft excel Software for data analysis and collecting ,
- Using PLX-DLX Software for data analysis and collecting ,
- Using Adafruit io platform for data analysis and collecting through internet ,
- “Hardware based Machine Learning(Average, CVS file handling, Data plotting, future value predicting and Data Regression)” on my respiratory(temperature and humidity) for ten seconds activity based project in python from DHT11 Sensor.
- Date, fault time and number of fault based Machine learning projects on “Switchgear” and protection equipment.
- “Specific Face Detecting and Matching percentage finding project”
- “Face mask Detecting project”

Link: https://github.com/Rafsan12345/Data-Analysis-Machine-Learning.git
Link: https://github.com/Rafsan12345/Python-With-Embedded.git

Micro controller based Industrial Controlling Project

- IR remote Control and Bluetooth Based DOL(Direct Online Starter) Controlling Module .
- IR remote Control and Bluetooth Based Reverse and Forward Controlling Module .
- IR remote Control and Bluetooth Based Star and Delta Controlling Module .
- Microcontroller Based ATS (Auto Changeover Switching Module).
- IR remote Control Industrial DC Voltage Regulator.
- IR remote Control Based Industrial relay and Magnetic conductor Controlling.
- IR remote Control Based Industrial Change over Switch.

- IR remote Control Based Industrial State remembering Switch.
- Variable resistor based industrial Channel Changing or Load Changing project.
- Increasing and decreasing value uses based industrial load Control and load selector point making project.
- Under and over frequency Monitoring system and their control project .
- ON and Off time Selecting delay input based industrial timer switch making project.
- Time Selecting Load Control in Seconds Making project.
- Industrial Motor Controlling and Analysis ability type Ladder Sketch drawing project for “PLC”.
- Digital frequency Meter Making project and frequency based Load Control in Proteus.
- Cyclo Converter based “VFD” Design and simulation in Proteus.
- Optocoupler based “zero crossing detector” Design in Proteus.
- “Electronics AC Voltage Dimmer” or phase angle control Circuit Design in proteus.
- “Digital Power factor Meter” Design in proteus.
- “Digital Overload Protector” Design and Implement based project(Set, Reset, Auto Reset, Auto Set from previous set value, and Ability to delay taking action).
- “Solid State Relay” Circuit Design in proteus.

Link: https://github.com/Rafsan12345/Induestrial-Control.git

IOT (Internet Of Things) Based Project:

- Smart IOT Based Attendance Data logger System Project Using AdafruitIO Server.
- Smart IOT Based Home Automation System Using Arduino Cloud .
- IOT Based Load Controlling System by Social Media.
- IOT Based Load Controlling by using GSM Communication Protocols.
- IOT Based Load Controlling by using Android Device Applets.
- IOT Based Load Controlling by According Year, Month, Time And Date.
- Google Assistant based Voice and Writing Command (Load Control) IOT Project by Using NodeMcu ESP8266 .
- Internet based (Load Control) IOT Project from Any place of Earth by using NodeMcu ESP8266,AdafruitIO.Software
- Blynk App based (Load Control) IOT Project by Using NodeMcu ESP8266 .
- IOT Based Sensors Data Collecting and Storage and Controlling by Various iot Platform and services .
- IOT Based Solid State Relay Designing in Proteus.
- IOT Based Controlling on Load on off State.
- IOT Based Load Controlling on Temperature and Humidity State.
- IOT Based Load Controlling on Phone Charging State.
- IOT Based Weather (Temp & Humid) Monitoring Automatic Data Logger in Google Drive Services.
- IOT and Remote control Based Industrial Motor Controlling Switching Module .

- IOT Based Smart Traffic Light Controlling System .
- IOT Based Medical And ICU Instruments Switching Module.
- IOT based Smart Irrigation Controlling Module.
- Web Server based Microcontroller Controlling project .

Link: https://github.com/Rafsan12345/Internet-of-Things.git

Python and Micro-python language Based Microcontroller Project:

- UART communication path creating python to Microcontroller in Pycharm.
- EEE Calculator making project in Pycharm(running).
- Finger Counter-based Load Control in Pycharm.
- Password \ Specific Code Based Load Control in Pycharm and Micropython.
- DHT11 sensor data read and printed in Thonny IDE.
- GPI\O, PWM, Digital, and Analog input output Sketch writing and their control based project in Micropython.
- IOT-based Home Automation using Socket programming in Micropython.
- Micropython-based Data sending and data receiving and load control through IOT platform Adafruit and IP 191.168…… link Protocols.
- Micropython-based Web request sending project.
- UART Communication write based project in micropython.
- Key-board and External buttons based like the “EVM(Electronic voting machine)” project in Micropython (Re-voting, NID and total vote checking ability)use thonny IDE.
- Python and Micropython self Library Creating and using ability type projects.
- Increasing, Decreasing, and Set Reset-based Load Controlling in Micropython.
  Wifi-based Digital Watch Making from NTP server with LCD display by using micropython.
- I have created an “Embedded MicroPython library” called “EasyPython” for ease of use, similar to the popular Arduino coding reference.
- Self-made “Voice Assistant with Load Control” Using Python Voce protocol like google assistant.

Link: https://github.com/Rafsan12345/Micropython.git
Link: https://github.com/Rafsan12345/Python-With-Embedded.git

Computer Vision and image processing project

- “Face detecting load control” Using python CV2 and Mediapipe protocol.
- “Hand detecting load control” Using python CV2 and Mediapipe protocol.
- “Webcam or IP link Based Face and Hand Detecting Load Control”.
- “Human Face Detecting Based Computer Automatic Shutdown” project.
- “Object Color Detection” project.
- “Security Camera with object movement detecting” project

- “Image or Video processing based Smart Solar trucking ” project
- “Image text to string text converting” project
- “New and Old Money Identification” project on ticket machine problem of Dhaka metro rail.
- Image contours find and their operation type project.
- “Car Number plate Detection”
- “Finger gap Detecting based Fan regulator and display leveling or volume control Model “
- “Number of coin and shape contours detecting project “
- “Smart Car parking based Free space counting and detecting “
- “Simple Non-Electric cork sheet Board Converted to Touch screen board project based on image processing”
- Gesture Control AC Voltage Angle Regulator
- Attempts have been made to create a system similar to HMI and SCADA.
- virtual steering wheel and speed control System for a Robot Control Vehicle/car by only hand Gesture Movement
- QR and BQ Scan and Implement in Computer vision activity.

Link: https://github.com/Rafsan12345/Computer-and-Robotics-Vision-.git

Embedded Control Software Development Project

- “Industrial Power factor Calculator” project
- “IP link-based Object Movement Detector and Image capture” project
- “Password-based Embedded Controller and Home Automation Connector”
- “Solar System Calculator 0.1”
- Sensor Dashboard and load controller software project

Link: https://github.com/Rafsan12345/Software.git

AutoCAD Electrical and PCB Design Project

Link: https://github.com/Rafsan12345/AutoCAD-Electrical-Desing.git
Link: https://github.com/Rafsan12345/PCB-Design.git

Embedded Control Library Development Project

- EasyArduino.h for PIC Microcontroller Series.
- EasyPython.py for Micropython Activity .
- Gas.h for AVR Microcontroller Series.
- AVR Atmega32 Driver Series Development .

Link: https://github.com/Rafsan12345/Library.git

VLSI CMOS Development Project

Link: https://github.com/Rafsan12345/Micro-Controller/tree/main/VLSI

Embedded Control Apps Development

- Bluetooth Control Home Automation Apps.
- Voice Control based Home Automation Apps.
- Web Server Based Home Automation Apps.
- Android Phone Sensors based Home Automation Apps
- “Voice and virtual button control” project by BLE
- “Voice and virtual button control” project by WIFI
- “STM32 CALCULATOR” project
- “IOT WEBSITE MINIMIZE IN APPS” project
- “SENDING AND RECEIVE TYPE APPS” project
- “API BASED LOAD CONTROL” project
- “IP ADJUSTABLE LOAD CONTROL” project
- “FIXED IP LOAD CONTROL” project

Link: https://github.com/Rafsan12345/Apps.git