SAURABH KUMAR | 21MI33020

B.Tech.(Hons.) in MINING ENGINEERING and M.Tech. in SAFETY ENGINEERING

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2026	M.TECH Dual Degree 5Y	IIT Kharagpur	7.71 / 10
2021	Senior School Certificate Examination	Jawahar Navodaya Vidyalaya, Kottayam	94.2%
2019	Secondary School Examination	Jawahar Navodaya Vidyalaya, Nawada	91.8%

PROJECTS

Library Management System | Self Project   [Nov'24 - Dec'24]

- **Developed a robust Library Management System** in **C++** using **Object Oriented Programming(OOPs) principles**, featuring modular design and scalability to address real-world library operations
- **Integrated advanced functionalities**, including dynamic **inventory management**, **custom Member ID validation**(year, department, and course-specific formats), and automated **due-date calculation** with reminders
- **Optimized data handling** with **maps** and **vectors**, ensuring efficient inventory tracking and seamless operations
- **Enhanced system reliability** with robust error handling, secure data validation, and prevention of invalid transactions
- Delivered a **practical, real-world solution** with a user-focused design, catering to institutional needs and showcasing expertise in **algorithm design**, system validation, and robust interface development

YouTube Auto Play and Pause Chrome Extension | Self Project   [Mar'24 - Apr'24]

- **Designed** and **implemented** a Chrome extension to enhance YouTube video playback control based on user activity
- **Integrated** the Chrome Extensions API to handle tab and window focus events, ensuring **seamless video playback control**
- Developed a content script enabling direct interaction with YouTube and automating video pause/play based on tab visibility
- **Managed** extension state using **Chrome's storage API** to retain user preferences across browser sessions

Fire Alarm System | Course Project | Prof. Vikranth Racherla   [Apr'22 - Jun'22]

- **Implemented** a sensor-based approach **using smoke** and **temperature sensors** to **detect potential fire accidents**
- **Integrated** an Arduino microcontroller to **process data** and **trigger appropriate alarm signals**
- **Utilized Tinkercad** to **design** and **validate** the fire alarm system before physical implementation
- **Developed code in C language** to **handle sensor readings**, **perform data processing**, and **generate alert messages**

SKILLS AND EXPERTISE

- **Programming Languages:** C/C++ | Python | JavaScript | SQL |HTML | CSS
- **Libraries/Modules**: C++ STL | ReactJS | NumPy | Pandas
- **Tools:** Git | GitHub | Visual Studio Code| Code::Blocks | MS office (Word, Excel, PowerPoint) | RoboDK | Canva | AutoCAD

COURSEWORK INFORMATION

- **Miscellaneous:** Programming and Data Structures* | Introduction to Front-End Development | English for Communication Introduction to Innovation and Entrepreneurship | Introduction to Quality Engineer
- **Mathematics:** Probability and Statistics | Linear Algebra, Numerical and Complex Analysis | Advanced Calculus
- **Core:** Computational methods and Mining Instrumentation | Mine Automations and Robotics | Mine Surveying and Geoinformatics* (* includes lab component)

AWARDS AND ACHIEVEMENTS

- Received a prestigious **2-year JEE Advanced** coaching scholarship from **Dakshana Foundation**, awarded exclusively to the top 1% of students from **Jawahar Navodaya Vidyalayas** nationwide
- **Achieved AIR 14** with 98.5 all India percentile and **100 Percentile** in my city in the **BNAT** - BYJU'S National Aptitude Test '21

POSITIONS OF RESPONSIBILITY

Core Team Member | Technology Mining Engineering Society | IIT Kharagpur   [Sep'22 - Apr'23]

- Collaborated with Core Team Heads to host and conduct a variety of **events**, including **competitions, quizzes,** and **guest lectures**, at India's largest mining technical fest, **GREAT STEP'23.** Played a key role in ensuring the success of the fest by managing logistics, coordinating with participants, and maintaining smooth operations throughout the event
- Coordinated and promoted events at two colleges, achieving **over 70 registrations** from these two institutions
- Led a team of 20 associate members to successfully organize departmental functions and events

EXTRA CURRICULAR ACTIVITIES

- **Volunteer | NSS IIT KHARAGPUR**   [Dec'21 - Apr'23]
  Organized **AIDS prevention** awareness campaigns during the 7-day NSS annual camp in December 2022
  Managed and organized data for all NSS volunteers during the NSS camp, ensuring coordination and record-keeping
- **Dakshana Selection Test | Dakshana**   [Feb'23]
  Headed and managed an All India Level test to select deserving students from JNV to receive JEE Coaching with around 300 students and ensured the smooth conduction of the test