JOYDIP ROY

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Kharagpur, India

SUMMARY

Senior Research Fellow in the department of Electrical Engineering at the Indian Institute Technology, Kharagpur, Also pursuing MS in Electrical Engineering at the same institute. Working with lab-fabricated sensors, signal conditioning circuits, PCB prototypes, micro-controllers, data acquisition and applications using IoT. Previously worked as an energetic Electrical Engineer with more than 2 years of experience in the Engineering / Construction industry. Well versed with the following industry skills: construction, procurement, inspection, engineering design approval, site-supervision.

WORK EXPERIENCE

Indian Institute of Technology, Kharagpur, India- October 2017 to present

Senior Research Fellow - October 2019 to present

- Implemented temperature compensation for conductivity and TDS (as these are temperature dependent).
- Implemented automatic ranging to allow autonomous monitoring from remote location in field (previously required manual intervention).
- Developed a battery operated prototype and used Wifi for telemetry and analytics using IoT (using ThingSpeak web platform).
- Final outcome would be a cheap, portable and commercial automatic water quality monitoring meter for use by farmers, fisheries, and School of Water Resources.

Junior Research Fellow - October 2017 to October 2019

- Involved in the development of a water quality measuring system using an indigenous sensor probe coated with a special ion-exchange polymer.
- Worked on sensor calibration, electronic calibration for the conductivity sensing using the indigenous sensor in a customized PCB designed in-house.
- Performance study of the same sensor in different setups to ensure that it can be used in real world scenarios.

SK Samanta & Co Pvt Ltd - Aug 2015 to October 2017

(An EPC Company, specialized in CHP, OHP, SILOS, SCR and WORKSHOPS erection)

Engineer Electrical (Design and engineering- Kolkata)- August 2016 to October 2017

- Experience in design engineering- AutoCAD drawings, Cable calculations and schedules, Illumination system, Earthing calculations, approval of drawings, Inspection of equipment at vendor's workshop, Site co-ordination.

Graduate Engineer Trainee Electrical (Site co-ordination-Bhilai, Dhanbad)- August 2015 to August 2016

- Experience in installation of equipment in Electrical Substation- such as HT and LT Switchgear, PMCC, MCC, MLDB, PLC/RIO, Bus duct, Transformer, Battery charger, Ventilation System, Capacitor Bank with

ACDB, laying and termination of LT & HT (heat shrinkable) cables, Cable tray arrangements, Illumination (indoor, outdoor and peripheral), Earthing and Lightning protection.

- Experience in conveyor system- Drives, Safety switches and Shuttle conveyor
- Experience in Bunker System- Travelling tripper, Plough/Paddle feeder
- Experience in Track hopper- Wagon Tippler

EDUCATION

- *MS in Electrical Engineering*

  Indian Institute of Technology, Kharagpur, India January 2019 - present

- *B-Tech in Electrical Engineering*

  Meghnad Saha Institute of Technology, Kolkata, India July 2011- May 2015

  (CGPA : 8.4/10)

- *12th Board-All India Senior School Certificate Examination(Computer Science)*

  The Pentecostal Assembly School, Bokaro, India 2009- 2011

  (Percentage: 83.6%)

- *10th Board-Indian Certificate of Secondary Education*

  De Nobili School, FRI, Dhanbad, India 2009

  (Percentage: 89.57%)

PUBLICATIONS

Journal Publications

- Avishek Adhikary, **Joydip Roy**, Anaparthi Ganesh Kumar, Susanta Banerjee, and Karabi Biswas. "*An Impedimetric Cu-Polymer Sensor-Based Conductivity Meter for Precision Agriculture and Aquaculture Applications*." in IEEE Sensors Journal 19, no. 24 (2019): 12087-12095.

Conference Proceedings

- Avishek Adhikary, **Joydip Roy**, and Karabi Biswas. "*Performance study of a two-electrode type aqueous conductivity sensor for smart farming*." In 2019 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), pp. 1-6. IEEE, 2019.

SKILLS

- Circuits: Simulation (MATLAB, Proteus, **Falstad-web**), Schematic & PCB design (Allegro, **Eagle**)

- Lab Equipments: Digital multimeter, Function generator, Power supply, Oscilloscope, Soldering station, LCR meter/ Impedance analyser, other lab accessories.
- Microcontrollers: **Atmega328P-PU** (**Arduino IDE)**, ESP8266, **ESP32** (**Adruino IDE**/ESP IDF)
- Programming: C, **C++, Java**, Python3, HTML/CSS
- Industry: Electrical Substation, Conveyor Systems & Drives, Conveyor Safety switches, Switch-gears & control panels, Transformers & Bus-Ducts, Engineering drawings (AutoCAD), site-coordination, etc.

AWARDS/ACHIEVEMENTS

- **Graduate Aptitude Test in Engineering (GATE) -2015**, All India Rank- **1650** (Percentile- **98.7%**) in Electrical Engineering
- Received **Principal's Award** for being an active member and Vice President of Science club (Physics dept.) in school.

HOBBIES

- Listening to music
- Reading
- Sports
- Languages (both linguistic & programming)

LANGUAGES KNOWN

Read and Write: English, Bengali, Hindi, and German (A1 level)