Brief Bio-data

1. Name: Preity

2. Date of Birth: 18/02/1996

3. Current Position and Address (Include Email ID and Contact Number): Technical officer, preitymishra@cimfr.nic.in.

4. Educational qualifications: (Graduation and above)

Sl. No.	Degree	Year of Passing	University/Institute	Subject
1	B.Tech	2017	Banasthali University	Electronics and Instrumentation
2	M.Tech	2024	Indian Institute of Technology (BHU)	Control Systems (Electrical engineering)

5. Work experience:

Designation	Institute/company	From	To	Nature of Work
Application Development associate	Accenture	28-07-2017	25-12-2018	Software engineering
Technical officer	CSIR-Central Institute of Mining and Fuel Research	17-01-2019	Till date	Research and Development

6. Work Area(s)/ Specialization:
Control Systems, Non-linear control, Emebedded systems, sensors and transducers, data acquisition circuits, process control, Industrial automation

7. Major contributions: (Max. 100 words):

- Involved in development, calibration and inhouse testing of soil nutrient measurement system for Nitrogen, Potassium, Ammonium, chloride and calcium; ground movement monitoring system; gas monitoring system through data acquisition, and calibration of gas sensors for Methane, Oxygen, Hydrogen Sulphide, and Carbon Monoxide;strata monitoring system, temperature, humidity, and air velocity monitoring system;wireless voice communication system;miners tracking system;antenna testing and solar based multipurpose system.
- Involved in design and calculation of Intrinsically safe circuits for different modules of Digital mine system.

- Involved in drafting of patent and hardware/firmware manuals for digital mines using Internet of Things, solar based multipurpose system, and dust collector system.

8. No. of Research Publications:
   - Papers in Journals:

1. **Mishra, Preity**, Chaulya, S.K. and Banerjee, G. (2021). A proposed data acquisition system and algorithm for signal processing of moving-coil geophone's output. SN Applied Sciences, 3. 10.1007/s42452-021-04330-z.

2. Kumari, A., **Mishra, P**., Chaulya, S. K., Prasad, G. M., Nadeem, M., Kisku, V., … Chowdhury, A. (2024). Estimation of Soil Nutrients and Fertilizer Dosage Using Ion-Selective Electrodes for Efficient Soil Management. Communications in Soil Science and Plant Analysis, 55(13), 1920–1941. https://doi.org/10.1080/00103624.2024.2334255.

3. Chaulya, S. K., Choudhury, M., Prasad, G. M., Kumar, N., Kumar, V., Kumar, V., … **Mishra, P**. (2024). V2X, GNSS, radar, and camera-based intelligent system for adaptive control of heavy mining vehicles during foggy weather. Journal of Quality Technology, 1–22. https://doi.org/10.1080/00224065.2024.2345255.

   - In conference proceedings:

1) **Mishra, P**., Nadeem, M., Chaulya, S. K., Chaulya, S. K., Singh, J. K., et al. (2022, April). Application of Artificial Intelligence for Prediction of Mine Hazards. Paper presented at the 9th Asian Mining Congress and Exhibition, Kolkata.

2) Chaulya, S.K., Prasad, G.M., Mitra, S., **Mishra, Preity** and Nadeem, M. (2021) "Development of a digital mine for safe and efficient mining", BCREC Engineering & Science Transaction, 2(1):1-21.

9. List of Major Contract R&D Projects:

Sl. No.	Title of the Project	Sponsoring Agency	Start Date	Date of Completion	Outcome of the project
1.	Setting-up of safety testing facility for electronics and IT products	MeitY, GoI	15.04.2015	31.03.2021	Safety testing laboratory established and NABL accredited.
2.	Development of digital mine using Internet of Things	MeitY, GoI	21.02.2018	31.03.2022	Digital mine system developed, patent filed, and

					technology transferred
3.	Development of vision enhancement system for foggy weather	MeitY & NMDC	22.11.2018	20.11.2022	Vision enhancement system developed, patent filed, and technol. transferred
4.	Setting-up of information and facilitation center for empowering living of SC in Jharkhand State	MeitY, GoI	04.04.2019	02.04.2022	IT and IoT-based facilitation center has been established
5.	Design and Development of an online wireless data acquisition system and software for ground control monitoring	CSIR-CIMFR	6.04.2019	22.02.2021	Developed an online wireless data acquisition system for ground control monitoring
6.	Sensor-based dust suppression system for haul roads in opencast coal mines	TEXMiN, IIT (ISM)	28.04.2022	17.10.2024	Development of wireless and sensor-based automatic water sprinkling system

10. (a) Name of Patents/Copyrights applied /granted/commercialized:

A. Patents

1) Chaulya, S.K., Prasad, G.M., Mandal, S.K., Banerjee, G., Singh, P.K., Chowdhury, A. **Preity**, Naresh Kumar, Virendra Kumar, Singh, J.K., Chandan Kumar, Pandit, D., Mitra, M., Mishra, S.S., Khusbhu Kumari, Mishra Richa, M., Kunal Saurabh, Dey, P., Md. Nadeem, Saw, G. (2020) "**Digital mine using Internet of Things**", 0002NF2020, dated 07.01.2020, Application No: 2020110292344, dated 10 July 2020.
2) Chaulya, S.K., Roy, S.K., Prasad, G.M., Mandal, S.K., Banerjee, G., Singh, P.K., Dey, S., Virendra Kumar, **Preity**, Mishra, R., Rajak, K.K. (2020) "**Retractable bed cover and dust collector for transport vehicles**", 0184NF2020; dated 11.11.2020.
3) Chaulya, S.K., Prasad, G.M., Mandal, S.K., Banerjee, G., Singh, P.K., Dey, S., Virendra Kumar, Naresh Kumar, **Preity**, Rawani, V.K., Richa, M., Sunil Kumar, Rajak Krishna Kumar, Saw, G. (2021) "**Solar-based Multipurpose Utility System**".

B. Copyrights

(i) **Soil and Water Health Reporting Software** (062CR2020, 05.11.2020), No. SW-14170/2021, dated 11/02/2021.

(ii) **Exploder Geofence Authentication (EGA)** Software, copyright no: SW-18014/2023, Dated 29/12/2023.
(iii) **Image Processing-based Soil Nutrients Analysis System**, copyright no: SW-18256/2024, Dated 9/02/2024

11. Honors/Awards/Recognitions/Fellowships/Scholarships/Professional Memberships received: Nil
12. Societal Contributions: Nil