| Sr no | Title | Publication | Paper link |  |
| --- | --- | --- | --- | --- |
| 1 | IOT‑Driven Smart Helmet: Advancing Safety and Real‑Time Monitoring in Mining Operations | *International Journal of Electrical Engineering and Technology* (IJEET) | <https://doi.org/10.34218/IJEET_16_02_002> |  |
| 2 | Helmet‑Mounted Real‑Time Toxic Gas Monitoring and Prevention System for Workers in Confined Places | *Sensors* 2023 | <https://mdpi-res.com/d_attachment/sensors/sensors-23-01590/article_deploy/sensors-23-01590.pdf?version=1675243571> |  |
| 3 | IOT based Smart Helmet for Hazard Detection in Mining Industry | arXiv preprint, Signal Processing (eess.SP | <https://arxiv.org/pdf/2304.10156> |  |
| 4 | Smart Helmet 5.0 for Industrial Internet of Things Using Artificial Intelligence | *Sensors* 2020 | <https://mdpi-res.com/d_attachment/sensors/sensors-20-06241/article_deploy/sensors-20-06241.pdf?version=1604212191> |  |
| 5 | Smart Helmet‑Based Proximity Warning System to Improve Occupational Safety on the Road Using Image Sensor and Artificial Intelligence | *Int. J. Environ. Res. Public Health* 2022 | <https://mdpi-res.com/d_attachment/ijerph/ijerph-19-16312/article_deploy/ijerph-19-16312-v2.pdf?version=1670373837> |  |

DIFFERENCES:

1. IOT‑Driven Smart Helmet: Advancing Safety and Real‑Time Monitoring in Mining Operations.

⇒Uses GPS nav, ours use WiFi bases local positioning

2.Helmet‑Mounted Real‑Time Toxic Gas Monitoring and Prevention System for Workers in Confined Places

⇒ Only gas monitoring, no location tracking.

3. IOT based Smart Helmet for Hazard Detection in Mining Industry

⇒ no positioning. Uses a fall detection module and aqi monitor.

4.Smart Helmet 5.0 for Industrial Internet of Things Using Artificial Intelligence

⇒ uses heavy ML models and AI, does not provide positioning (wifi or gps)

5.Smart Helmet‑Based Proximity Warning System to Improve Occupational Safety on the Road Using Image Sensor and Artificial Intelligence

⇒ a slightly different product, used for road safety, incorporates image sensing and Ai to detect threats and avoid collisions .