

IoT Based Mountain Climber Health and Position Tracker

Mr. Mayur Sonawane¹, Ms. Jyoti Rathod², Ms. Ashwini Avadhut³,
Dr. Bhausaheb Shinde⁴, Prof. Dipanjali Padhi⁵

Students, Department of Electronics & Telecommunication Engineering^{1,2,3,4}

Professor, Department of Electronics & Telecommunication Engineering⁵

Dhole Patil College of Engineering, Pune, India

Abstract: *In extreme and remote environments like mountain climbing, safeguarding climbers' safety and health is of utmost importance. This project proposes an innovative IoT-based system designed specifically for monitoring mountain climbers' health and tracking their positions. The system utilizes a combination of sensors including the MAX30102 Pulse Oximeter for continuous health monitoring, the Neo6M GPS Module for accurate location tracking, and the MPU6050 Accelerometer and Gyroscope for motion sensing. The central processing unit of this system is the Node MCU ESP8266, which efficiently collects data from these sensors and transmits it to a designated server or cloud platform. In the event of emergencies or critical health conditions, the system is capable of automatically initiating distress signals or alerts to designated contacts via popular online messaging platforms like Telegram. The primary objective of this IoT-based mountain climber health and position tracker system is to provide real-time monitoring and data analysis, thereby significantly enhancing the safety, performance, and overall experience of mountain climbers. By continuously monitoring vital health parameters and tracking precise geographical locations, the system ensures timely intervention in case of emergencies, facilitating prompt rescue operations and improving overall risk management in challenging mountainous environments. This project represents a crucial advancement in leveraging IoT technologies to address safety concerns in mountain climbing, offering a comprehensive solution that integrates sensor data with cloud-based communication to optimize climbers' safety and well-being during their expeditions.*

Keywords: Mountain, Oximeter, GPS, Telegram, IoT

REFERENCES

- [1] J. Griswold, S. M. Wong, and T. L. Powley, "Wearable Health Monitoring Systems for Remote Environments," IEEE Transactions on Biomedical Engineering, vol. 63, no. 7, pp. 1523-1532, July 2016.
- [2] M. S. Hasan, A. A. Ahmed, and M. A. Hossain, "IoT-Based Real-Time Health Monitoring Systems: A Review," Journal of Sensors, vol. 2018, Article ID 1825679, 15 pages, 2018.
- [3] M. Li, Y. Li, and S. U. Khan, "An IoT-Based Health Monitoring System for Elderly in Continuous-Time Big Data Streams," IEEE Internet of Things Journal, vol. 5, no. 6, pp. 4728-4735, December 2018.
- [4] R. M. Altamimi, A. M. Khedr, and A. S. Mohamed, "Development of a Smart Health Monitoring Vest Using Wearable IoT Devices," International Journal of Electrical and Computer Engineering, vol. 10, no. 5, pp. 5040-5050, October 2020.
- [5] H. R. Siddiqui, M. S. Alam, and A. V. Vasilakos, "Health IoT: Technologies, Architectures, and Challenges for Healthcare Big Data Analytics," IEEE Internet of Things Journal, vol. 4, no. 5, pp. 1451-1457, October 2017