Human Security System Using GPS Location

[1]Kaphi Narval,[1]AadityaAmitabh,[1]AnushkaSingh,[1]MuktaTehri,[2]Ashkaran Bisnoe

[1,2]DepartmentofAIT-CSE,Chandigarh University,Mohali,Punjab,India

Abstract- This abstract presents a Human Security Assistance System that integrates GPS tracking technologies to improve personal safety. The system uses exact GPS coordinates to detect and update user positions in real time, allowing for geofencing and real-time tracking features. Communication is facilitated via a secure messaging system, which enables users to send out emergency notifications and get help right away. Strong user authentication features highlight the system's dedication to protecting sensitive data, as do strict data management and privacy guidelines. Accessibility is guaranteed by the inclusion of a user-friendly smartphone application, which makes the system an easy-to-use and practical tool for people in a variety of situations. This system, which prioritises ethical issues over technological innovation, adds to a complete approach to human security by utilising GPS tracking power.

I. INTRODUCTION

The Human Security Assistance System with GPS Location Tracking and Messaging System is a proposed model for human security monitoring that can be used to ensure the safety of individuals. Human security is a paradigm for understanding global vulnerabilities that challenges the traditional notion of national security through a people-centered and multi-disciplinary understanding of security.

The proposed model can be used to enhance various aspects of human security and can be used to manage clients. The system can provide practitioners with a better understanding of GPS technology and its potential impacts on an agency's supervision program. The system can be used to ensure the safety of women and can provide alerts to nearby people in case of an emergency.

The system can be used to track the location of individuals and can send SMS alerts to emergency contacts, making it an effective tool for ensuring human security. The proposed model can be used to ensure the safety of individuals, especially children, elderly people, or women.

The system can be used to detect the location of the user and can send alerts to hospitals and fire service stations in case of fire alerts and accidents. The proposed model can be used to ensure the safety of individuals and can be an effective tool for ensuring human security.

The ability to use GPS to trace the movements of people raises important ethical issues. Continuous monitoring of one's activity by a researcher, even where consent is initially given, poses the threat of invasion of privacy and may lead to psychological implications from the feeling of being "watched".

The use of GPS technology to monitor individuals raises questions about individual privacy rights. There are concerns about the amount of information that can be deduced from a person's movements and how that

information may be used. Geo-location privacy legislation prohibits the use of this technology for routine surveillance activities.

II. LITERATURESURVEY

The literature survey for the human security system using GPS location project includes six relevant articles. The articles cover a range of topics related to the use of GPS technology in enhancing human security. The following is a summary of the articles:

"A Proposed Model for Human Securing using GPS": This article presents a system architecture for human security monitoring using GPS technology. The proposed model can be used in personal locators for children, elderly people, or women.

"Improving National Security Using GPS Tracking System Technology": This article explores the use of GPS tracking technology in improving national security. The article highlights the potential applications of GPS technology in enhancing security and safety.

"Mobile Safety Alarms Based on GPS Technology in the Care of Older Adults": This article discusses the use of GPS alarms in supporting independent activities of older adults. The article highlights the potential applications of GPS technology in ensuring the safety of individuals.

"Global Positioning System (GPS) Technology for Community Supervision: Lessons Learned": This article discusses the use of GPS technology in community supervision. The article highlights the potential benefits and challenges of using GPS technology in community supervision.

"Strengths and Weaknesses of Global Positioning System (GPS) Data-Loggers and Semi-structured Interviews for Capturing Fine-scale Human Mobility: Findings from Iquitos, Peru": This article discusses the strengths and weaknesses of GPS data-loggers and semi-structured interviews in capturing fine-scale human mobility. The article highlights the potential applications of GPS technology in studying human mobility patterns.

"The use of Technology of Global Positioning System (GPS) in Criminal Investigation & Right to Privacy under the Constitution and Criminal Legislations in Jordan": This article discusses the use of GPS technology in criminal investigation and the right to privacy. The article highlights the potential benefits and challenges of using GPS technology in criminal investigation.

III. PROPOSED SYSTEM

The strong capabilities of the Java programming language, which is well-known for its dependability and security characteristics, will be utilised in the development of the proposed GPS-based human security system. This all-inclusive system will take privacy, technology, and ethical issues into account while prioritising human safety. An advanced infrastructure will be produced by combining components like GPS tracking devices, the Geographic Information System (GIS), the Global Navigation Satellite System (GNSS), the Inertial Measurement Unit (IMU), and the Inertial Navigation System (INS). While the Global Navigation Satellite System and Inertial Measurement Unit help with accurate position monitoring, the Geographic Information System will manage spatial data. Through the integration of many sensors, the Inertial Navigation System will improve accuracy.

IV. SYSTEM DESIGN

The Human Security Assistance System is a robust and comprehensive platform designed to

ensure the safety and well-being of individuals through advanced GPS location tracking and a sophisticated messaging system. Leveraging a reliable GPS module, the system continuously updates and monitors user locations, with the option for geofencing and alert triggers. A secure messaging platform facilitates real-time and asynchronous communication, prioritizing end-to-end encryption for confidentiality. User authentication is a priority, incorporating multi-factor authentication to restrict access. In the event of emergencies, users can trigger alerts, prompting immediate notifications to emergency services or designated contacts. The system also manages user profiles, storing critical information such as medical history and emergency contacts securely. Integration with local emergency services ensures a swift and coordinated response. A user-friendly mobile application enhances accessibility, while adherence to data protection regulations and privacy measures guarantees the confidentiality of user information. The system's scalability, reliability, and rigorous testing at each stage ensure its effectiveness in providing a comprehensive and secure human security assistance solution.

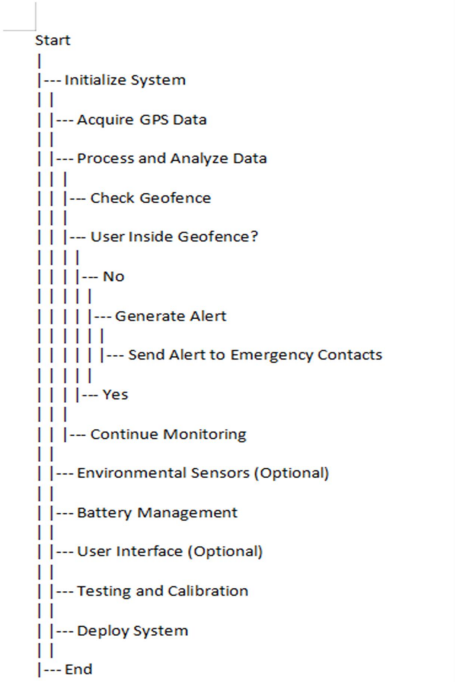

FIG 1

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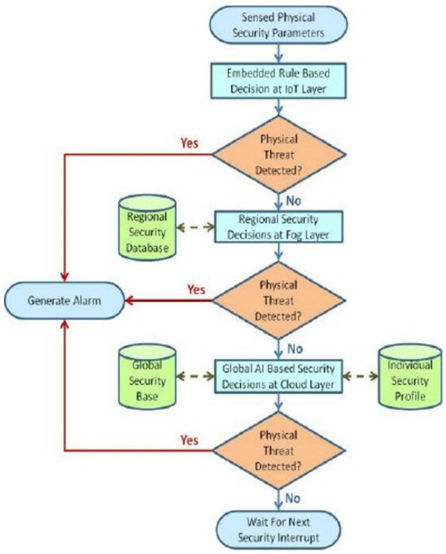


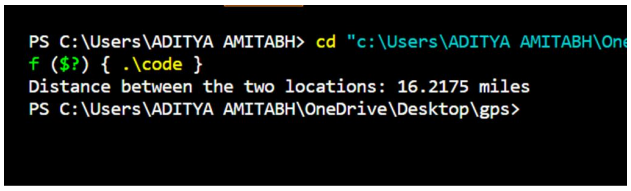
FIG.2

V. RESULT AND DISCUSSION

I. CODE:

```cpp
#include <iostream>
#include <cmath>
// Convert degree to radian
double degToRad(double degree) {
    return degree * M_PI / 180;
}
// Calculate distance between two coordinates
double calculateDistance(double lat1, double long1, double lat2, double long2) {
    double theta = long1 - long2;
    double dist = sin(degToRad(lat1)) * sin(degToRad(lat2)) +
    cos(degToRad(lat1)) * cos(degToRad(lat2)) * cos(degToRad(theta));
    dist = acos(dist);
    dist = dist * 180 / M_PI;
    dist = dist * 60 * 1.1515;

    return dist;
}
int main() {
    // Current location (latitude, longitude)
    double lat1 = 30.81197660652597;
    double long1 = 76.30676503986649;

    // Tracking location (latitude, longitude)
    double lat2 = 30.768808611834107;
    double long2 = 76.57535043801514;

    double distance = calculateDistance(lat1, long1, lat2, long2);
    std::cout << "Distance between the two locations: " << distance << " miles" << std::endl;

    return 0;
}
```

OUTPUT :



II. DISCUSSION:

a. The well-structured and succinct code includes comments that clearly explain each function's purpose.

b. For figuring out how far apart points are on the surface of the Earth, the Haversine formula works well.

c. For the current and tracking locations, the latitude and longitude numbers are hardcoded into the code. These numbers would typically be retrieved dynamically from a database or via user input.

d. Miles are used to compute the distance, which might be appropriate in some situations. Nevertheless, it might be advantageous in some applications to also supply distances in other units (e.g., miles).

Calculating geographic distance is essential to a human security system that incorporates GPS tracking. Effective emergency response planning, proximity warnings, secure location verification, geofencing for border monitoring, and optimised search and rescue operations are all made possible by it. The technology makes use of computed distances to facilitate journey planning, guarantee user safety, and give emergency responders precise information. To put it simply, this feature makes it easier for the Human Security System to keep an eye on, assess, and react to a variety of security situations, which essentially increases user safety.

VI. CONCLUSION

In conclusion, the Human Security Assistance System—which boasts a sophisticated message infrastructure and GPS position tracking—represents a significant improvement in guaranteeing people's safety and well-being. This system provides exact distance estimations, geofencing capabilities, and real-time monitoring by utilising GPS technology. Integrating a secure messaging system makes it easier for people to communicate effectively, allowing them to send out emergency notifications and get help quickly. The system's dedication to protecting sensitive data is emphasised by its all-encompassing approach to user identification, data management, and privacy compliance. The incorporation of an intuitive mobile application augments accessibility, guaranteeing that people may effortlessly employ the system throughout emergencies. The Human Security Assistance System is a well-thought-out and morally sound system that prioritises user privacy and security while embracing technological innovation. This is a big step towards making the world a safer and more secure place for people in a variety of circumstances.

VII. REFERENCES

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