Arduino Bulwark

ABSTRACT

Human beings are outnumbered by Internet devices. One cubic inch of nanotube circuitry, once fully developed , would be up to one hundred million times more powerful than the human brain. As the Internet Of Things advances, the very notion of a clear dividing line between reality and virtual reality becomes blurred, sometimes in creative ways.

This paper presents a "**ARDUINO GPS GSM BULWARK"** *which allows an Arduino board to connect to the Internet , send and receive SMS, and make voice calls using the GSM library.* This device is used to detect the GPS location of any object which is attached to a tracking device. The proposed system make good use of popular technology that combines a smartphone with an Arduino UNO. GPS is a satellite based navigation technology that provides accurate location and information. The GSM module is used to transmit and receive an update from the object location to the database . Data from numerous satellites are received by GPS receiver. Arduino is linked to the GPS and the GSM module in the serial connection. The GPS receiver sends data to Arduino. Then, Arduino instructs the GSM module to send the location data to the GSM enable device in a short message form. **This device can be incredibly useful for knowing the whereabouts of Dementia patients who are likely to attempt to go missing, escape, wander off and are incapable of returning home .** This device is small can fit anywhere and can be operated simply

KEYWORDS

Arduino UNO, GSM module, GPS module, Mobile.

FIELD OF INVENTION

This invention generally pertains to the thought of a family member , a friend or someone else suffering with cognitive disabilities or dementia, goes missing. "The journey of the dementia is a journey like no other". Dementia is a group of mental disorders characterized by loss of memory and impairment to thinking and problem solving capabilities. *Our project focuses on the fact to prevent such painful separations and its fallouts with the help of continuous GPS tracking device which provides many features.*

BACKGROUND OF INVENTION

M.A.Al Rashed , Ousmane Abdoulaye Oumar and Damanjit Singh proposed the tracking system which keeps the track of the location of a vehicle and its speed,

based on a mobile phone text messaging system. In addition to this, the speed can be locked and an alert is texted if this speed is exceeded.

Huang Dat Pham, Michael Drieberg and Chi Cuong Nguyen in 2013, presented the development of the vehicle tracking system's hardware prototype. The system will provide users with the capability to track vehicle remotely through the mobile network.

JanusWojtusiak and Reyhaneh Mogharab Nia in March 2021, aimed to describe the exploring possibilities of using GPS devices to track people with AD and find the patterns of their movements.

INTRODUCTION

This paper is aimed at tele-care service providers and who are aiming to manage the risks of a vulnerable person, who may be prone to become lost away from their home. A huge amount of people suffering from Dementia or similar cognitive disabilities have been reported to be missing every year. Dementia is a group of mental disorders characterized by loss of memory and impairment to thinking and problem-solving capabilities, which has plagued all nations around the world and posed substantial challenges to health, aged care and social economics. It is a leading cause of death and disability in persons aged over 65 . By 2050 the amount of people with dementia will be tripled to 132 million, with societal economic costs accounting for 1% of global GDP

Wandering is a common form of disruption for people with dementia for a number of reasons, such as memory problems, disorientation and boredom. *According to the Alzheimer's association,* 6 in 10 people with dementia will wander . It can pose a great risk to the safety and well-being for the person and thus is a critical concern for caregivers. Although, there is still no effective cure for dementia related wandering, precautions and efforts can be taken to reduce the risk of wandering to dangerous areas and to help release the burden and depression of caregivers.

Thus, to improve the quality of life of such people and their families, a reliable and economic tracking system is necessary. *In order to address this issue , this paper demonstrates a follow up and rescue program for such people. The purpose of this proposed system with a microcontroller for real-time tracking of dementia patients in order to ensure their safety when they go outside of their house.* In general, this devices utilizes a GPS module to retrieve geolocation from satellites and a GSM module to transfer real time locations back to a central server. These locations are compared against a preset geofence or

virtual boundary, i.e. safe zones, and will trigger timely interventions from caregivers when necessary.

However, with the help of this system, the number of losing patients will be decreased and the pressure on the caretakers and family people will be cut down to some extend and provide peace of mind to them.