IOT BASED Fall detector for physically challenged or elderly people

Abstract

Every person needs an extra care in her/his old age after 60 years or certain age. In this project we are mainly concentrated on such age category. In our project we are concentrating on health parameters such as heartbeat, body temperature etc. we create an alert system if they fall down when they are at home or when they are out of home for walk. In this system, we included 5 panic buttons for applications like health assistance, normal assistance, panic, lost path and emergency Since we have many issues in women safety and children this product is also useful for them. For health monitoring system we are using Pulse sensor, temperature sensor etc.
The main part of the project is the microcontroller here we are using Arduino controller. Since we are also sending all the sensor data to the cloud we are using ESP8266 WIFI module.

Introduction

For elderly individuals unexpected falls will cause important injuries. Fall related injuries are the leading reason for injury-related deaths among adults 65 years old and older these injuries are also the number one reason for emergency room visits. An average nursing home with one hundred beds can expertise anywhere from one hundred to two hundred falls annually, with typical institution patient experiencing a fall a pair of.6 times per annum. Elderly people aged sixty-five and older experience the bulk of these falls. Falls among older individuals become one in every of the most common and often vital issues facing hospitals and health care providers. For that reason, previous research has approached this downside to come back up with a mechanism to notice falls. Common fall detection strategies embrace a detection feature and a trigger to issue an emergency decision to provide treatment. Fall detection is based on algorithms that use sensor values like accelerometers, gyroscopes, and Magnetometer. These sensors cannot absolutely differentiate between falls and ADL (Activity of Daily living). This ends up in a high share of false alarms that is that the main reason for the failure of these systems, therefore they're principally rejected for business use by observance services.

WORKING PRINCIPLE

In our design, we have a tendency to tried to tackle the matter and notice solutions for assistant living for the elderly by adding the area location capability to spot the placement of the fall, data is sent to a software package and hardware package i.e.

cloud that triggers a wireless communication that shows in app we build and website. By doing thus we are able to establish the fall initial. Independent living for the older is additionally a crucial side of this project. The high price of those systems for private use created it tough to be commercially successful. In this project totally different wireless technologies are introduced and therefore the reason of choosing one specific technology over others is mentioned. Causes and bar of Falling within the older.

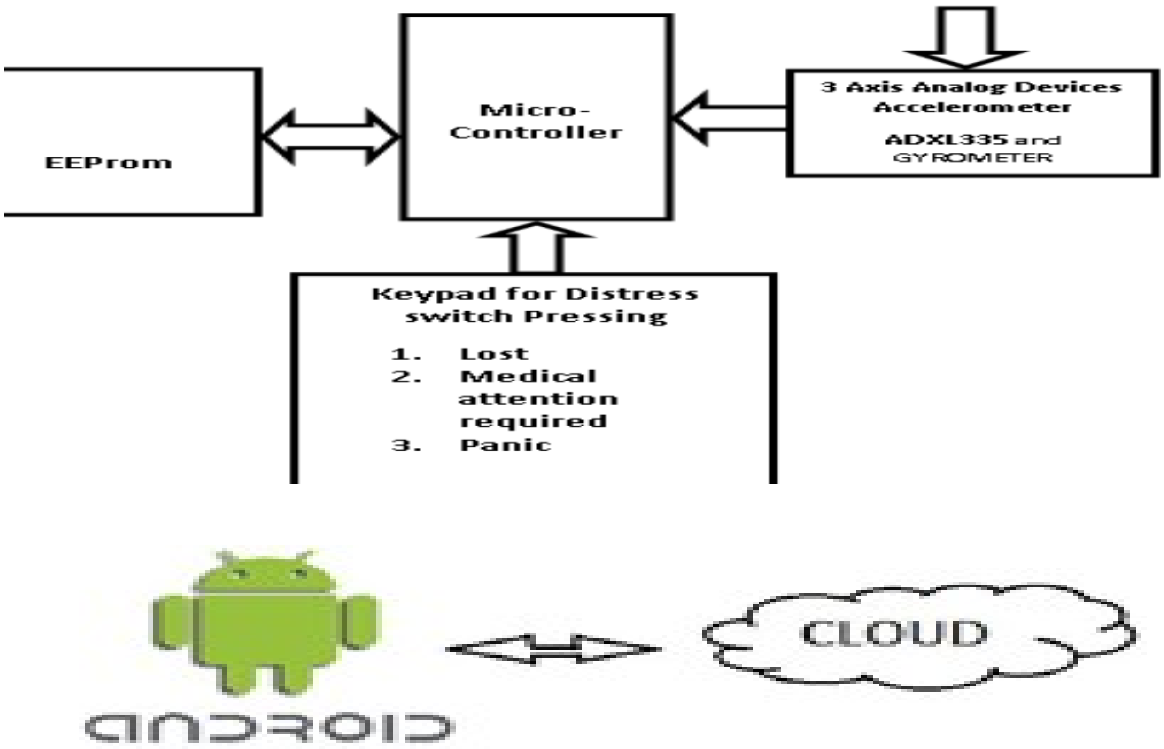
Understanding the causes of falling within the older facilitate notice alternative ways to forestall falls. the autumn notice-ion device's main perform is to detect a fall however it might be helpful if we are able to stop falls from happening within the initial place, or developing a mechanism to protect the older if a fall happens. as an example, deploying a cushion which may serve as protection just in case of a fall, though this mechanism isn't enforced in this project, it's counselled for future work.

Younger individuals fall quite older individuals. However, the injuries they suffer are less sever sometimes a tiny low bruise or discomfort, not like the older World Health Organization usually ends up with broken bones and suffer a lot of severe injuries, thus it's vital to avoid falls. The causes of falls are called risk factors, sometimes a lot of falls occur when there are a lot of risk factors concerned. Being responsive to these factors will facilitate understand the risks concerned and may assist you notice ways that to forestall them or build the changes necessary to produce protection. we are going to offer some major risk factors of falls among older adults. Those are arpathology, Vision changes, Balance problems and medications and Environmental risks and hazards. While comes to the women safety 80% of the women's get many insecurities in our society. As per the recent survey around 11,485 incidents are recorded in Delhi hence this would really help us for safe guarding the women. While in the case of children usually the kids play and have fun due to that they get misplaced so as of that issue and securities issues our project takes a helper hand.

Features that are in our Project

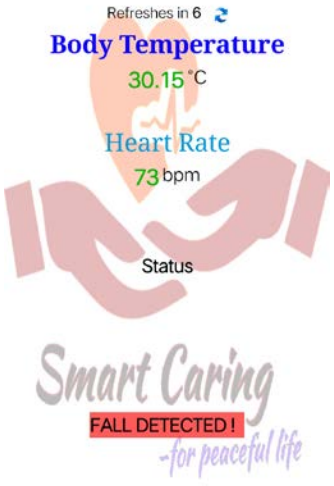
- SOS tracking
- LOW cost prototyping
- GPS and GSM
- Multi user

Block Diagram



List of Hardware

- GY 521 (Accelerometer , Temperature and Gyrometer)
- PUSH buttons
- OLED(display)
- Arduino Nano
- Pulse sensor
- WiFi module



Expected Outcome

As we've projected, we've worked on Arduino we tend to over come all the difficulties and finnaly we worked upon GY521 , we'd presently get acceleometer and Temperature output where as in further will be getting on other 2 remaing i.e gyro and magnetometer as we could get for acceleometer and temperature similarly other sensors work on same mechanisam therefore we've enough hope that desired output will be achived.

This is the partial outcome of my Arduino Application where we can monitor the Heart rate, Body temperature and the status of the person using switch pad.