

MEDIBAND

(A MEDICAL SMARTBAND)

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Problem Statement:

Nowadays, unobserved human falls are being seen more often which is more dangerous. It causes major injuries, health issues, and sometimes even death.

Fall detection is a major challenge in the public healthcare domain, especially for the disabled people and elderly as the decline of their physical fitness, and timely and reliable surveillance is necessary to mitigate the negative effects of falls.

Objective:

Our system monitors the movements of the human body, recognizes a fall from normal daily activities by an effective quaternion

algorithm, and automatically sends a request for help to the caregivers with the patient's location.



System Design:

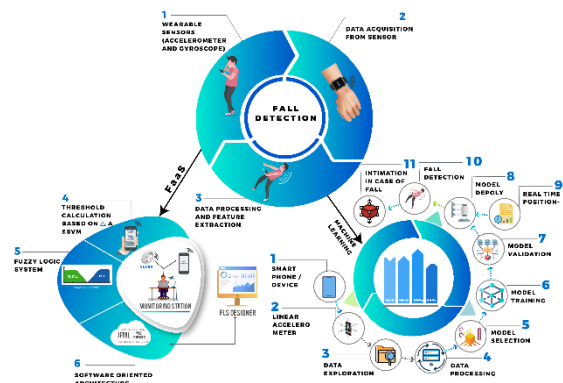
A wearable device is placed on the human's wrist. The system can detect the elderly's falling by acceleration analysis. Then it will get the elderly's geographic position and send a fall alarm short message.

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to caregivers. So, the elderly who has fallen can get timely help to minimize the negative influence.

Working of the Band:

These systems feature detection sensors (multiple accelerometers and processors) that can detect between normal activity, and an actual fall. By continuously measuring the speed of movements in all directions, the fall detector can compare what it senses to what it considers an actual fall.



Our fall alert detectors can sense what position they are in, how fast they are moving, and how they are moving (smoothly or abruptly). According to our project, 80% of users experience no false fall detections per month while 90% of users experience one or fewer false detections per month.

The benefits of automatic fall detection to seniors can be great. Considering that one-third of adults over 65 will fall each year, fall related injuries are not uncommon. Also, if you or your loved one has

diabetes, low blood glucose or another condition that increases your risk of falling, this feature might provide you with additional piece of mind. Getting help fast in these situations could be life-saving.

Novelty of the device:

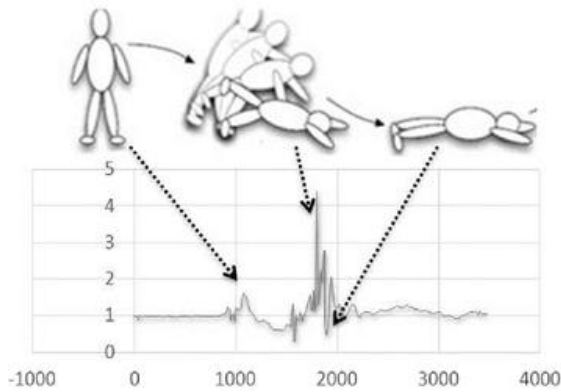
1. Algorithm Design:

Algorithm used in this fall alarm system is based on thresholds-of-sum acceleration and rotation angle information. When a real fall happens, collision between human's body and ground will produce obvious peak value at the sum of acceleration.

2. Location based service:

Alarm receiving function on caregiver's handset has also been tested. An alarm SMS (short-message-service) containing a map URL has been received by the handset, when a fall has been detected. Clicking the URL will open a map in Web browser on which the fall location will be displayed accurately

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Features:

1.Accident prior detector:

Intimates to the caretaker by call or SMS so that life can be saved.

Benefits:

- Since it immediately detects to caretaker, we can save lots of people's valuable life.
- We need not give any allow or deny when accident is caused it automatically gives a call to caretaker so it's beneficial.
- Compact easily wearable and comfortable to wear.

2.Heart pulse detector:

It's used to calculate heartbeat of humans and if any abnormalities it intimates to caretaker.

3.Temperature:

It's used to calculate temperature of our body and if abnormalities it will intimate to us.



Conclusion:

This tech friendly device is super beneficial and helpful for everyone without any age criteria and doesn't have any exceptional cases related to working hours it's Whole working one.

It's interesting and beneficial for all in this high-tech world.