

Elderly Monitoring Robocar With Fall Detection

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Abstract- Falling down is the main reason of death among the elderly. In our project we can implement robot for fall detection using accelerometer and gyroscope and it can be control by using android Application. To realize human fall detection by using remote control robot is an unobtrusive method. It also monitors And detect fall events of a person in household environment. Compare to the use of a fixed sensor , the humanoid robot will And keep the moving person in the scene while performing daily activities.If a fall occurs, the robot will send message to family members. In this project we can implement a humanoid robot system, aimed at the prevention of elder people accidents in everyday indoor activities.

Keywords- Human-Robot Coordination Stability, stability measure, fall detection, fall prevention, fall detection, elderly, monitoring.

I. INTRODUCTION

MOTIVATION

Adults 65 years of age or older experience higher rates of falling and are generally at a higher risk for falls. One in every person over the age of 65 years is estimated to fall 1 or more times each year. Falls and fall related injuries represent a significant threat to the health and independence of adults 65 years of age and older [3].

Falls can have severe consequences such as injury or death; in 2010 in the United States, 21,649 older adults died from fall related injuries.

Objectives:

- Our overall goal is to develop robots with abstraction social skills robots that navigate in ways in which folks perceive and expect.
- we have a tendency to have an interest in developing robots that may operate as social assistants, like encouraging institution residents to participate in social activities and accompanying them to common areas.
- Such a robot cannot simply drive toward a goal and expect the elder people to follow and we can operate it on our office with help of android app.

Literature survey

In this paper failing to strike the balance between several factors including reliability, complexity and invasion of privacy has seen prohibitive in the uptake of these systems. Some systems depends on ambient sensors like cameras being mounted in all rooms of a user's home while others depend on wearable sensors like any band being worn 24 hours a day. This paper explores a system employing a golem NAO mechanism with twin vertically mounted cameras to perform the task of fall detection. Systems drawback is currently a very high false positive rate leading to a specificity of 0.675[1].This paper an unobtrusive method to realize human fall detection by using Bluetooth beacons, a smart phone and a low cost mobile robot is presented. The method is composed by five steps. The first consists in extracting features from the smart phone acceleration data, which are then analyzed online by the fall detection algorithm. Once the fall event is detected, then the location is determined by using the Bluetooth signal received from beacons [2]

II. PROPOSED SYSTEM

There have been a lot of systems developed to detect the fall of the old people. But most of them require the camera to enable the tracking of the user's movement and this system very costly and difficult to be set up [1]. In Our project we use accelerometer and gyroscope for old people fall detection. We can control the robot with the help of android application in our office or outside place of house. Implement a humanoid robot system: To prevention of elder people accidents in everyday indoor activities. We can control the robot with the help of android application in our office or outside place of house. Following figure (a) is block diagram of our system.

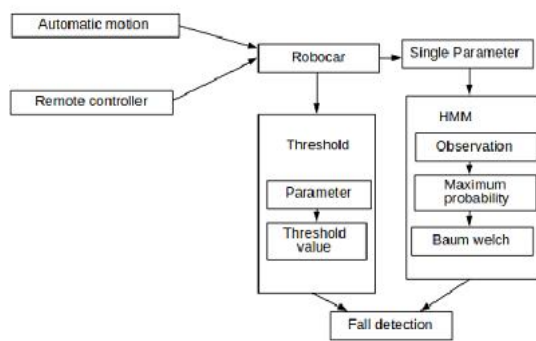


Figure (a) block diagram of system

III. FEASIBILITY STUDY

Software Feasibility:

1. Android Studio IDE.
2. Arduino IDE

Hardware Feasibility:

1. Accelerometer.
2. Gyroscope.
3. Arduino.
4. Stepper motor.

Advantages:

- Industrial Services
- Medical Services Security

Scope:

- Our project future scope is to develop robots with spatial social.
- The robot to track people who may be moving or stationary in unknown, potentially dynamic, indoor environments.
- Aimed at the prevention of children and elder people accidents in everyday indoor activities

IV. CONCLUSION

In conclusion, fall detection is a tedious process for which currently there is not a standardized solution. In this paper, we have proposed a technique for automatic fall detection using Smartphone. The approach utilizes the phone accelerometer captured data to make decision.

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