HOME SOS SYSTEM FOR ELDERLY PEOPLE

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1 Introduction

Currently, Thailand is entering an aging society with a population aged 60 years or more, more than 10 percent of the total population and it is likely to increase steadily. Causing health problems resulting from physical changes and aging. Which these people have a high chance of falling accidents. This work tries to create a fall alert system and collect data on falling methods using Accelerometer sensors. The equipment is created and tested by the system. The user will have the following functions, when detecting a fall from a device next to the elderly notifications, it will be sent to the camera to allow the camera to take pictures of the falling room. Images, camera positions and alerts will be sent to the caregivers via the LINE mobile app.

2 Objective

1 : To study the fall characteristics of the elderly use for detecting fall.
2 : The device can automatically ask for help to the caretaker. When falling.
3 : The device to be able to collect data and analyze the results for the development of the device's accuracy.

Acknowledgements
I thank Assoc. Prof. Dr. Sakon Sansongsiri, Dr. Sittha Sukkasi, Dr. Arnan Sipitakiat, Mr. Theerawat bunfong and the team from MTEC and Fab lab CMU provided good knowledge and support, as well as providing ideas and comments that were helpful to me

3 Equipment


ESPino32CAM


ESP8266


Accelerometer

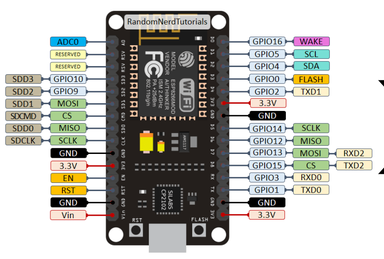

Li-Po Battery


Battery Changer

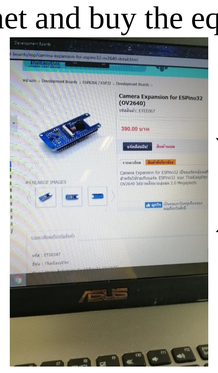
4 Methodology

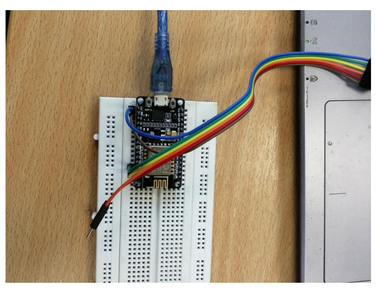
Part 1: (Hardware) Study how to use the equipment and buy equipment.

1.1. Study the information on the internet and buy the equipment you need.



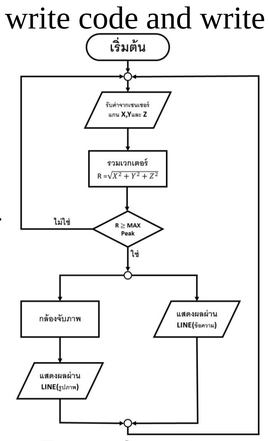
Study equipment information.


Buy equipment.

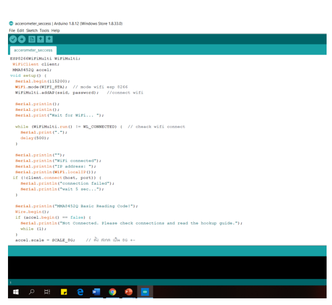

Test equipment.

Part 2: (Software) Learn how to write code and write code in order to use the created device.


Learn how to write code.

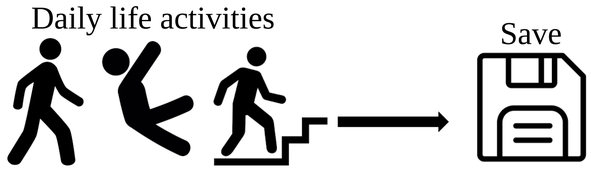


Draw flowchart

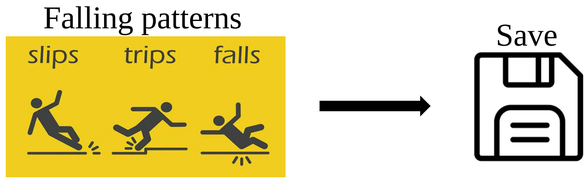

Start coding.

Part 3: (Test) Test the equipment for The experiment.

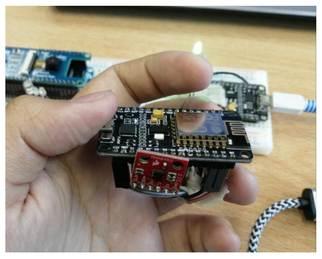
Daily life activities



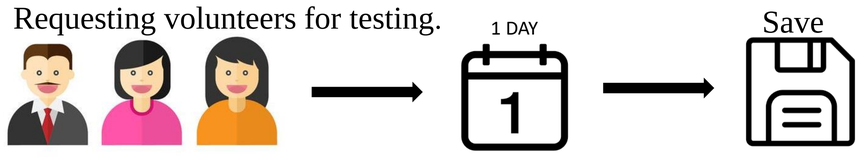
Falling patterns



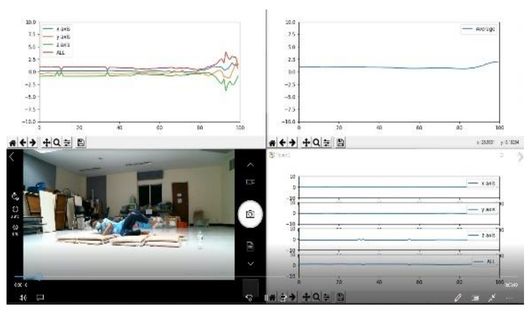
AND

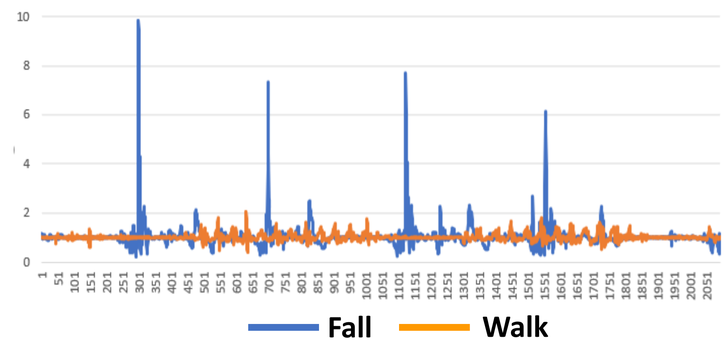

Assemble the equipment.

Requesting volunteers for testing.



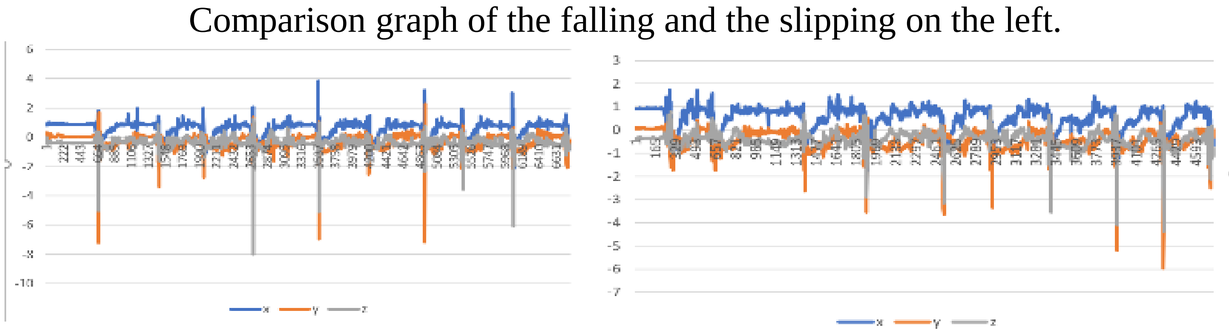
5 Results


The program shows real-time graphs and videos.



Comparison graph of the total acceleration of walking and falling.

Comparison graph of the falling and the slipping on the left.



6 Conclusion

Total accuracy	Fall detection accuracy	Time spent in warning
96.67 %	100 %	6 Second

References :
1. Pongphan Somphaeng. 2D acceleration detection system with Bluetooth Accelerometer. CITE. 2017;1-6
2. IOXhop. Using ESP8266 to control the LED via MQTT using Arduino IDE. github.io. 2016
3. Thaieasyelec. ESPIno32CAM: LINE Notify. thaieasyelec.com. 2019

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