Due to the complex and changeable situations, the normal camera may not suit to it. In order to solve it, we thought about using the deep camera. There are many kinds of it, such as Rangefinder, dual-lens cameras or Infrared camera. However, most of them are expensive or difficult to deal with the data. So, we considered the Kinect, which is a cheap machine that released in 2010 as an accessory of Xbox. Using RGB camera in the middle, we can get a clear figure in good light condition and the infra-red LED provides images in weak light condition. What’s more, the video caught by Kinect can be preliminarily consulted and output by extract the human joint which is easier to judge the motivation of human being. After the construct the module of robust fall and modify by suitable data set, we can obtain a good solution. Besides, attributing to high output frame rate of deep camera and the ability of 3D tracer technique, we can analyze the dynamic procedure of robust fall. Then, the large group of data can give a better consequence through the neural network. The other advantage of using it to detect is that has low intrusiveness and the possibility of remote verification of fall events. If we finished the project, it will have wide application scenarios owing to today sophisticated smart home device.

6. 设计要考虑使用环境（）

A good design should consider the circumstance which can be used in multiple situations.

7. 设计应该是服务于所有人的

A good design should be constructed with goal for serving human society.

8. 好设计应是随需求而变化的（scalability）

A good design should have scalability which can be modified by real-time requests.

9. 好的技术应学习和预测人类行为（重复学习）

A good design should learn and predict human behaviors, and repetitive learning will help promote the procedure of precise calculation.

10. 好设计应实用性强（速度，精度，成本低）

A good design should be practical which runs fast, recognizes precisely and is cost-efficient.

We use generic devices, and we can get rid of the limitations of the need for high-quality images.

If we want to improve practicality of fall detect system, the samples should be collected from different circumstance, such as cameras in roads, monitors in banks or shops. That means the data we needed has wide range of resources. However, the 3D structured light camera is experience and has many limitations. For example, the Kinect is the most common device which used in scientific research, but it only can be used at most 5 meters and cannot be exposed in high light situation. Therefore, our algorism is designed to suit different resolving power and frame rate by detect and extract the dynamic target, and generic devices just meets our standards.