

Design Novel Inflatable Hip Protectors

Status: Filled

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Project Description

Abstract: Fall-related injuries such as bone fracture, subdural hematoma, soft tissue injury reduce seniors' quality of life, often leading to chronic pain, dependence on others for daily activities, disability, and fatality. Among fall-related injuries, hip fracture has some of the most severe consequences. Nearly 20% of old people hospitalized for a hip fracture die within a year after the incident, and about 50% suffer from chronic consequences of hip fracture. The survivors are reported to become highly dependent on others for their basic daily activities, resulting in significant decline in mobility, physical activity, and social interaction. In other cases, even if a fall does not lead to significant injury, the affected senior may suffer from psychological

The designing process will include the following components and steps:

1. Development of a sensory system for human falls detection ;
2. Development of an effective human falls detection algorithm;
3. Implementation of the algorithm in a microprocessor;
4. Design customized airbags to protect against hip injuries;
5. Development of airbag deployment method and strategy;