SMART rehabilitation: developing accelerometry technology to facilitate remote stroke rehabilitation

( Using technology to provide feedback about performance during rehabilitation )

Dr. Huiru(Jane) Zheng, University of Ulster, SMART EQUAL project
Current Rehabilitation Systems

- Provides analysis tools/interface for professionals
  - Stick diagram
  - Kinematics and kinetics analysis
- Lack of visual feedback for patients and their carers
Design targets

• **User defined**
  - Professionals
  - Patients / carers

• **User interactive interface**
  - Information
    - Patient information, including
      - personal information, history, movement data, questions/queries
    - Professional comments
  - Presentation
    - 3D visual feedback
    - Communication tools for making comments, discussion

• **Sub-systems**
  - Home-based monitoring system
  - Web-based monitoring system
Infrastructure of home-based rehabilitation system
Home-based system
Patient Interface Flow
On-screen interaction

The graphical user interface (GUI) consists of two elements:

1. ‘visualisation’ – the display of the arm, the movement…
2. the control of the system.

- Demo of the home-based monitoring system
- Demo of the web-based monitoring system (can be accessed at [http://193.61.149.35/smart/](http://193.61.149.35/smart/), username and password can be arranged when request.)