Presentation

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Background

Background

Aging Problem

Aging...Older...Feeling bad...Afraid...Clumsy...Not swift...

Disturbing Facts

- Physical
  – age-related declines in motor skills (clumsy, not swift, easily tired and hurt...)
- Emotional
  – not energetic, feeling bad, easily upset...

Comparison

Young and old

Background

Focus on

How the decline of cognitive and motor functionalities caused by aging impact the performance of older adults on target selection tasks on touch-screen devices?

Expectation

New design of accessible user interfaces for older adult users
Aims to enhance personal, professional and social activities of older adults, and people with disabilities.

Projects

Overview

- 2D–indirect input devices (mouse)
- 3D–touch-based direct input devices (touch-screen)
- A big blueprint for sth.

Project Description

- 2D–indirect input devices (mouse)
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Environment

Trajectory

- Leap Motion (Position, Angle, Range)
- Tablet

Measures

- Finger
  spatial position (coordinates), velocity, accelarated velocity, angle, time
- Tablet
  intended position, actual position, re-entry, error, recovery movements

Performance Evaluation

Pre-trials & trials
Trajectory Prediction

- Mistakenly aimed for the wrong target?
- Aimed for the correct target but missed?

Performance Evaluation

- Mistakenly aimed for the wrong target?
- Aimed for the correct target but missed?

Analysis & Ideas

- An appropriate distance for two close target button
- Peripheral elements
- Respondent time – need confirmation? Trade-off between speed and accuracy
- Target verification strategy – zoom in? twinkle?

Performance Evaluation

- Mistakenly aimed for the wrong target?
- Aimed for the correct target but missed?

Analysis & Ideas

- An appropriate size for one target button
- Different kinds of errors (compared with young adults– in the test, 20-25 years old) (slipping? missing? recovery?) – More slipping errors at xx%, Less re-Entry, More secondary smaller submovements(unintended)
- Hard to recover – add into feedback
- Without support, after a certain time muscle become weak – pressure – An appropriate number of constituent tasks selection (avoid too many steps) – joystick control

New Device Design

version 1.0 : Joystick

- Support the hands, not feeling tired so easily
- Less slipping or missing errors
- Hard to control (only up down left right)(hard to zoom in and out and click button)
- Takes a lot time
- Accurate and feeling controllable

version 2.0 : Maybe a ball ?

Ongoing...

Thanks

Thanks

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:-) Everyday Learning New Things

Brainstorming this morning, your dissertations, Stefanie's efficient workflow, ikea thing...

And...

Maybe can speak slowly...
Really happy to work with you and learn from you !