研究課題名（和文）	高齢者のためのユーザインタフェースデザイン
研究課題名（英文）	User Interface Design for the Ageing Population
研究代表者氏名	Xiangshi Ren
研究代表者所属・役職	Center for Human-Engaged Computing, Kochi University of Technology・Director, Professor
研究期間	平成 27 年 4 月 ～ 平成 30 年 3 月（3 年間）

１．日本側の研究実施体制

ワークパッケージ 3	Developing haptic pen-based interaction for older adults	
氏名 Name	所属機関・部局・役職 **Affiliated institution, department and position**	役割 Role
Xiangshi Ren	KUT, CHEC, Professor, Director	Principal Investigator
Yukinobu Hoshino	KUT, School of Information, Associate Professor	Development of haptic interfaces
Sayan Sarcar	KUT, CHEC, Assistant Professor	Interfaces design, experimental design
Chaklam Silpasuwanchai	KUT, CHEC, Assistant Professor	Experimental design
Zhenxin Wang	KUT, CHEC, Assistant Professor	Experimental design
Qinglong Wang	KUT, School of Information, PhD. student	Pen development, conducting experiments
Handityo Aulia Putra	KUT, School of Information, PhD. student	Development of haptic interfaces
Toshiaki Shiraki	KUT, School of Information, Master student	Conducting experiments, analysis (all packages)
Masaki Obata	KUT, School of Information, Master student	Conducting experiments, analysis (all packages)

John Cahill	KUT, Center for Human-Engaged Computing, Visiting researcher	Design based on interviews with older people

ワークパッケージ 4	Investigating basic capabilities in smartphone interaction	
氏名	所属機関・部局・役職	役割
Xiangshi Ren	KUT, CHEC, Director	Principal Investigator
Chaklam Silpasuwanchai	KUT, CHEC, Assistant Professor	Experimental design
Sayan Sarcar	KUT, CHEC, Assistant Professor	Experimental design
Zhenxin Wang	KUT, CHEC, Assistant Professor	Computational neuroscience
Kavous Salehzadeh Niksirat	KUT, School of Information, PhD. student	Experimental design, conducting experiment, analysis
Toshiaki Shiraki	KUT, School of Information, Master student	Conducting experiments, analysis
Masaki Obata	KUT, School of Information, Master student	Conducting experiments, analysis
John Cahill	KUT, Center for Human-Engaged Computing, Visiting researcher	Design based on interviews with older people

２．日本側研究チームの研究目標及び計画概要

Objective and Plan (Japanese side)

For the next year, we will extend our work on the text-entry interface to other interfaces in smartphones for older adults. We believe this work can greatly benefit older adults. We will conduct a total of 2 packages:

- Package 3: Develop haptic pen-based interfaces for smartphones
- Package 4: Investigate basic capabilities in smartphone interaction

３．日本側研究チームの実施概要

How to achieve/methodology (Japanese side)

General methodology includes traditional human factors approach, human performance modeling, and model-based optimization. The details are as follows:

Package 3: Developing haptic pen-based interaction for older adults
The main goal of this package is to leverage haptic pen-based interaction for older adults in smartphone use. Little study has investigated the suitable range of intensities and frequencies

of vibration feedback in pen-based interaction for older adults. Furthermore, little is known regarding the basic control capabilities of older adults in performing pen-based interactions. This package aims to fill these gaps and this will result in a unique haptic smart-pen device that supports a set of novel interaction techniques. This package will also explore how model-based optimization can be used to determine the *optimal* vibration feedback.

Package 4: Investigating basic capabilities of smartphone interaction

The main goal of this package is to understand older adult capabilities to perform basic tasks in smartphones such as tapping, swiping, dragging, steering etc. Little study has investigated the efficiency of older adults in smartphone interaction according to different factors. It is, therefore, an issue to quantify the influence of specific factors like device screen size, postural patterns of users, target size, location of target in the touchscreen, gripping etc. on user task performance. This package aims to address issues that will result in comprehensive design guidelines for senior-centred touchscreen interface design. Human-performance modeling and design guidelines will be the main outcomes.