

MAG Ring: An Intuitive Method for Zoom

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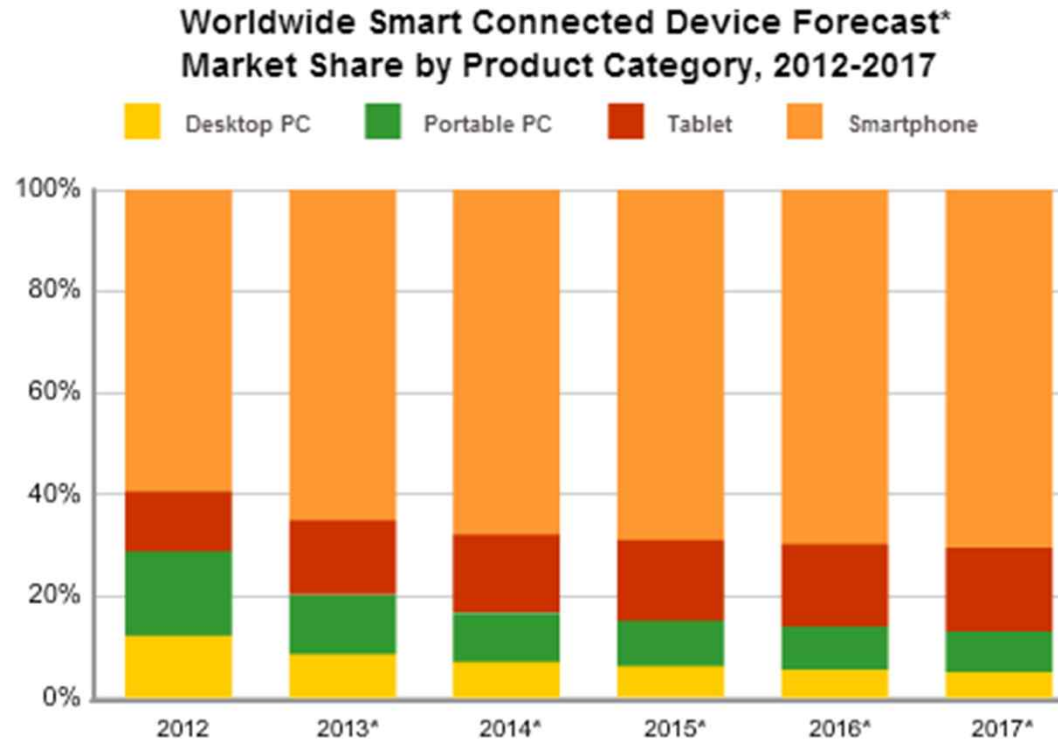
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Outline

- **Introduction**
- **Related Work**
- **Proposed Solution**
- **Experimental Condition**
- **Future Work**

Introduction

- **Smartphone is replacing personal computer**
- **Users meet various contents with smartphone in these days**



Introduction

- A quantity of information shown at a time is limited due to its screen size

색이나 모형 변화(e.g. 아이가 인형을 움직이는 횟수가 많으면 파란색, 적으면 빨간색으로 색 변경)

contextual event sensing

- 내장된 센서를 통해 아이의 상황을 파악하여 필요시 부모의 핸드폰으로 상황 전달 (e.g. 아이가 울거나 소리를 지르는 등의 상황을 전달)
- 인형에 마이크로 카메라를 내장하여 부모가 아이의 모습을 확인할 수 있음

parent supporting

- 깨안고 잘 경우 심장 박동 소리와 심장 박동을 묘사한 진동을 통해 잠자리 보조
- 부모님의 목소리를 저장하여 아이가 특정 행동을 할 경우 이를 실행, 스마트핸드폰을 통하여 특정 메시지를 계속해서 갱신하여 저장 가능



Related Work

- Method of magnifying a portion of display (Lai)

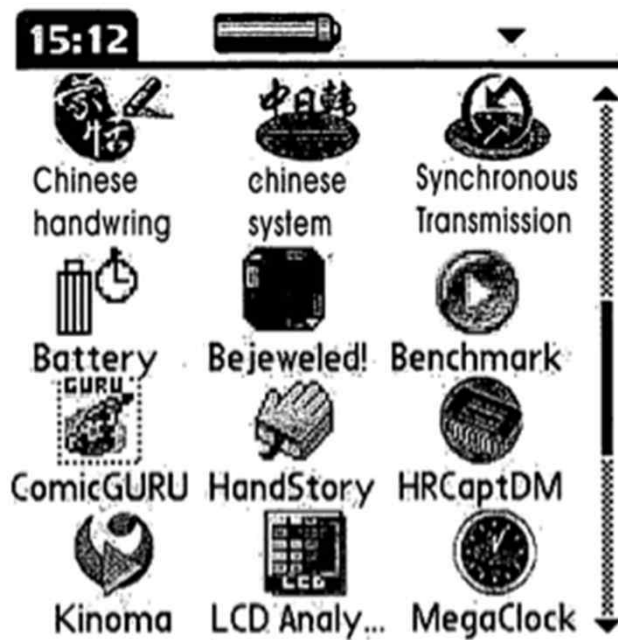


FIG. 1



FIG. 2

Related Work

- **Touch Gesture (Villamor)**

**Adjust view
(zoom in)**



pinch

Touch surface with two fingers and bring them closer together



double tap

Rapidly touch surface twice with fingertip

**Adjust view
(zoom out)**



spread

Touch surface with two fingers and move them apart

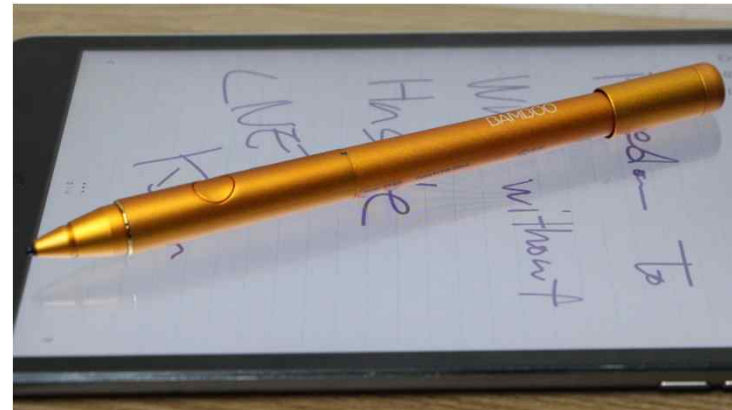


double tap

Rapidly touch surface twice with fingertip

Related Work

- **Appcessory**
 - **Compound word of (app + accessory)**
 - **An appcessory is a smart phone accessory that is combined with a specially written app to perform a useful function.**



Proposed Solution

- **MAG Ring**



Attatch copper tape at both ends of the ring to detect information of the ring such as diameter, area, and rotation.



A prototype made with 3D printer

Proposed Solution

- When the ring touch a screen, an area inside the ring is expanded.
- Zooming in if the ring is rotated clockwise, Zooming out, if the ring is rotated counterclockwise.



Proposed Solution



Experiment Condition

- **Material**
 - **MAG Ring, Smartphone**
- **Conditon**
 - **20 participants (10 males and 10 females, over 50 years old)**
 - **2 modes X 2 types of contents**
 - **MAG Ring mode vs. Pinch Zoom mode**
 - **Text vs. Picture**

Experiment Condition

- **Comparison**

	Touch Gesture Zoom	MAG Ring
Expanding Range	Full Screen	Inside of the Ring
Strength	It is built in smartphones	Users can recognize where he/she is watching in the display. It is easy to manipulate.
Weakness	Users cannot see the composition of a screen. Relatively many number of touch.	It is a separate appcessory.

Future Work

- **Experiment**
- **Analysis**
- **Conclusion**
- **Discussion**

Thank You