



智能手表的非接触备择交互模式的设计

Designing Alternative Contact-free Modalities for Smart Watches

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答辩时间 2016年5月17日

项目地址  <https://github.com/changkun/BachelorThesis/>
 <https://changkun.us/bachelorthesis/>



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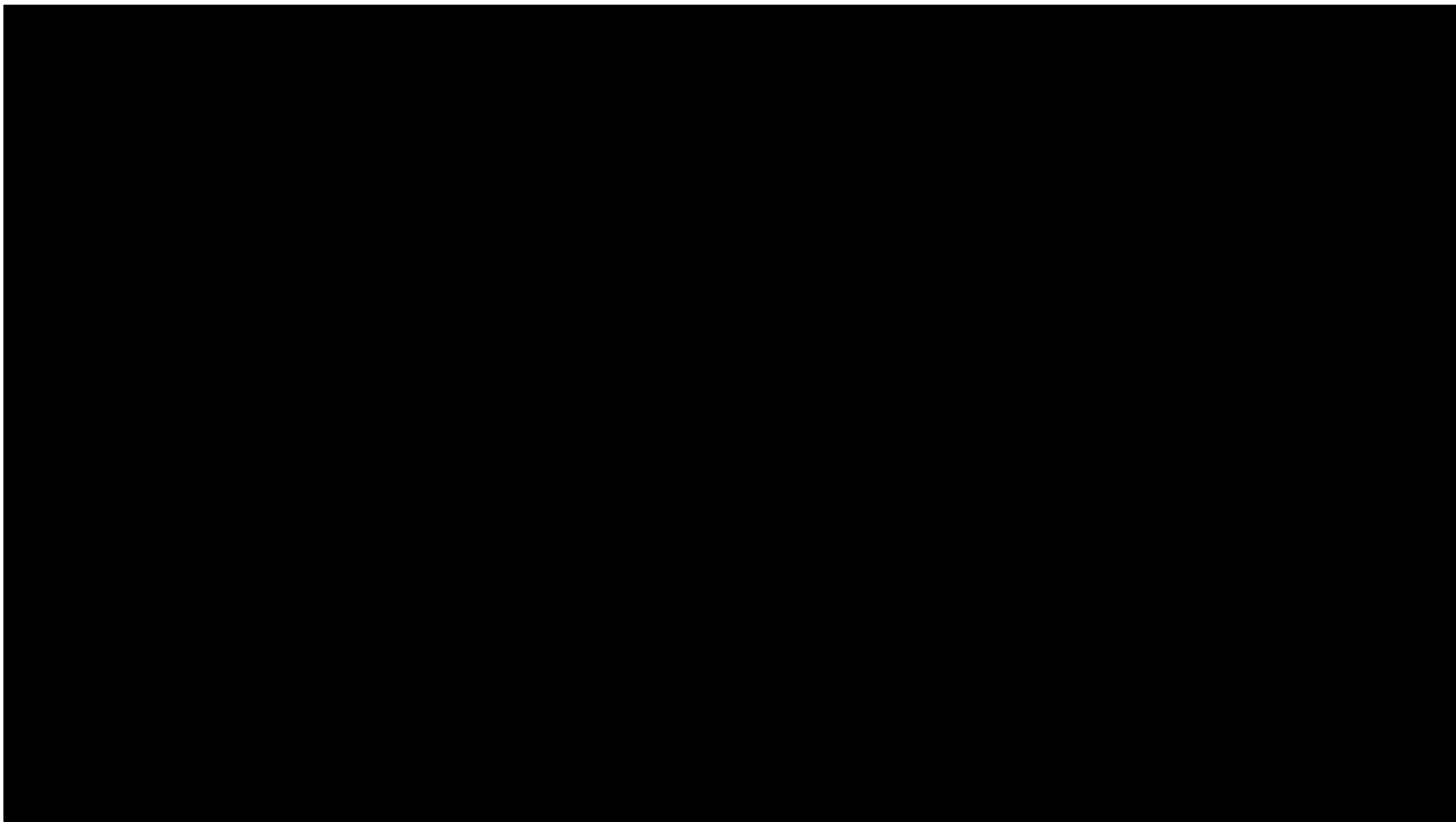
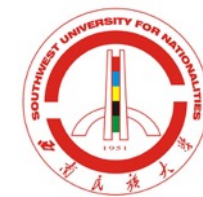
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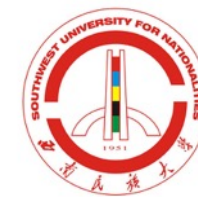
选题意义 & 视频演示

Intentions & Demo



Demo





1

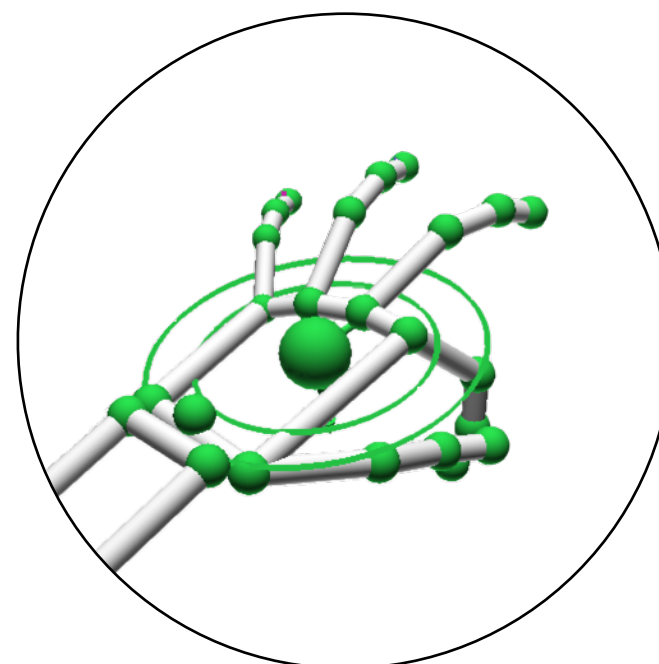
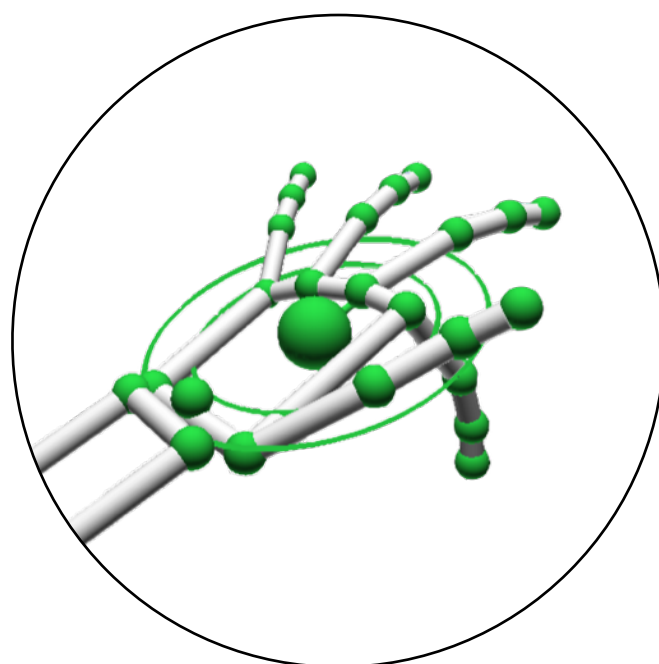
备择交互设计

Alternative Interaction Design

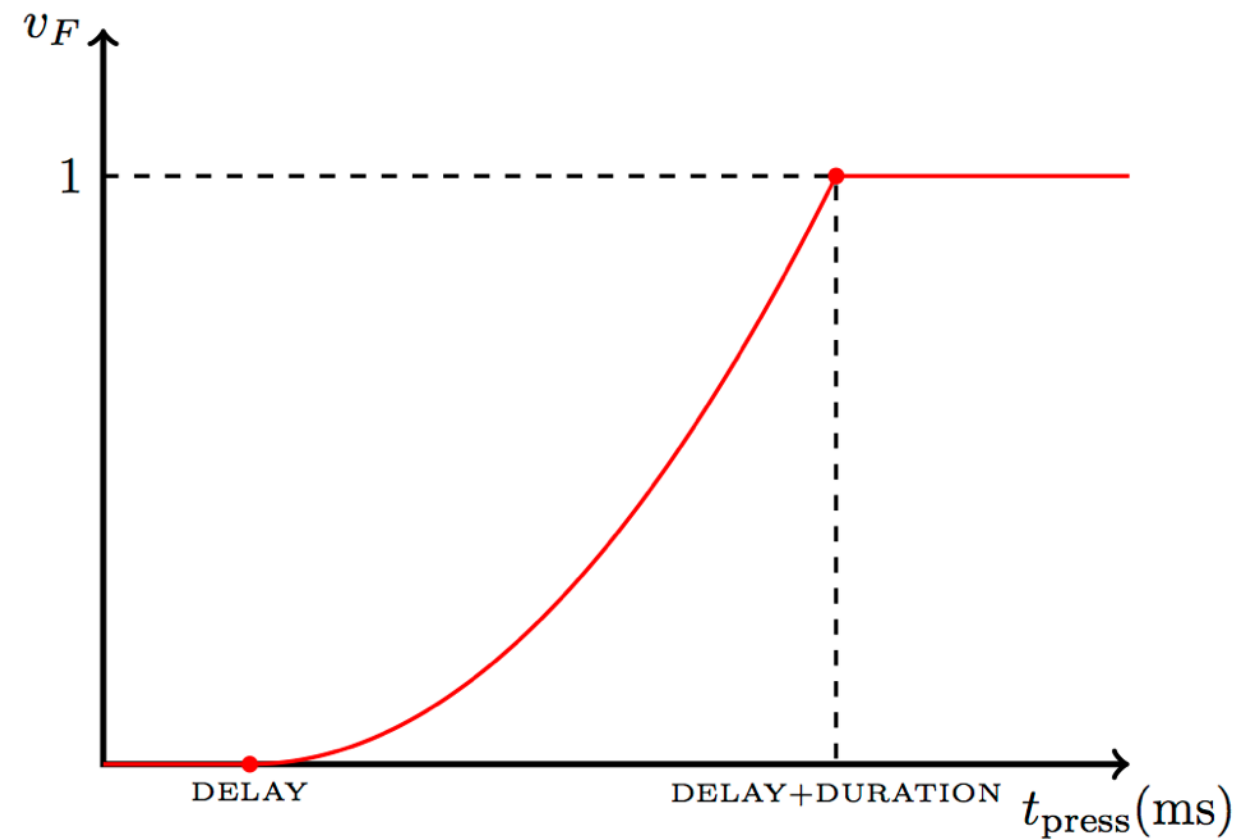
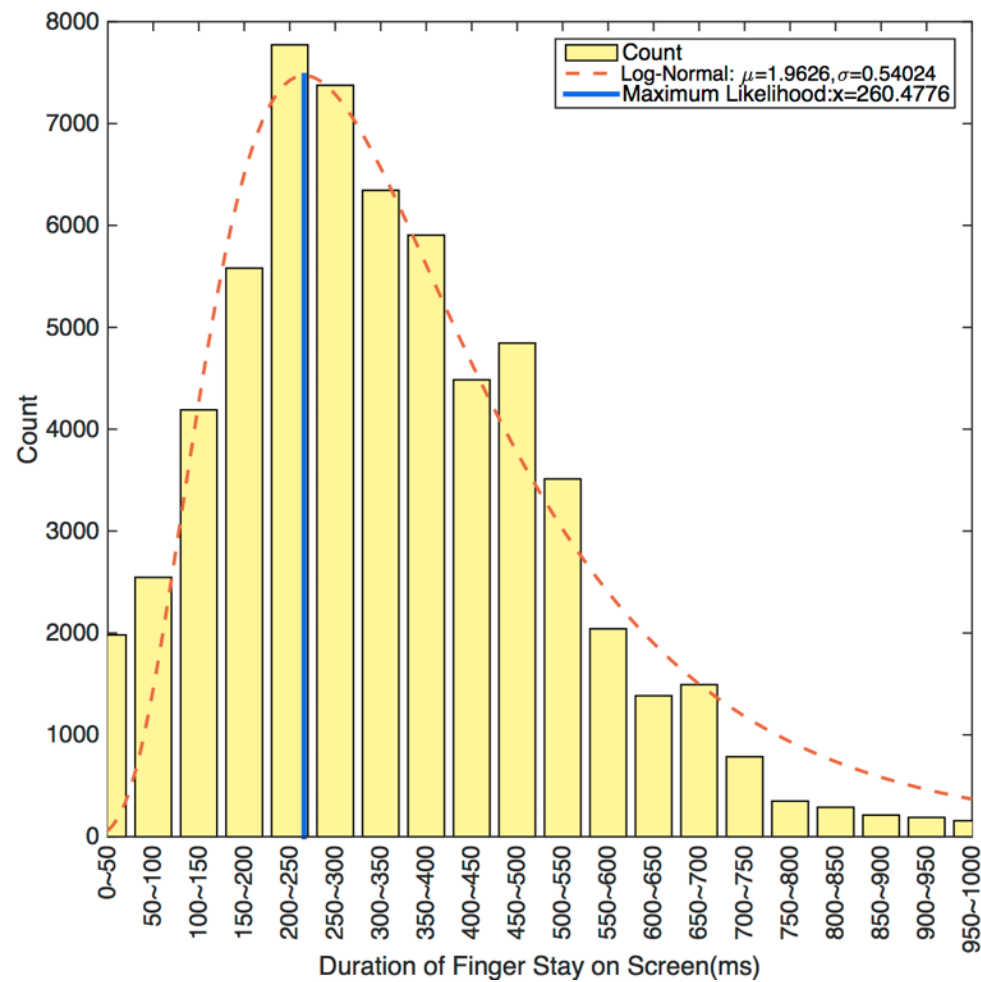


$$T = a + b \log_2 \left(\frac{A}{\sqrt{2\pi e(\sigma^2 - \sigma_a^2)}} + 1 \right)$$

Finger Fitts Law[2.1.1]



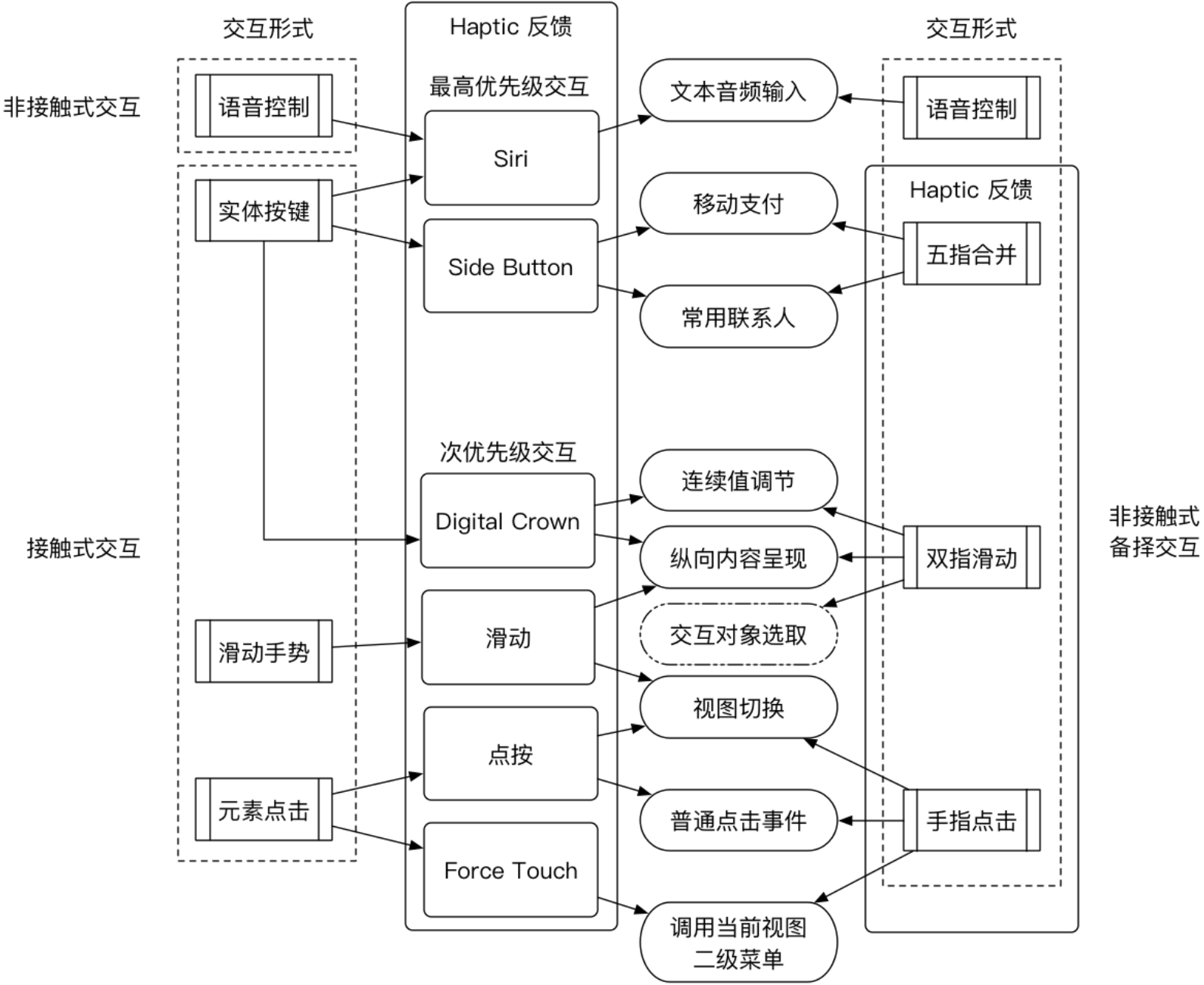
Two Fingers Swipe Gesture



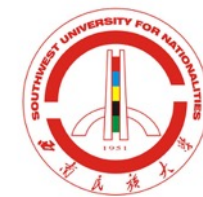
Force Touch Simulation and Its Formula

AugmentedTouch 项目[3.1.3] 实施的用户调研记录了 61440 次手指点击屏幕时的停留时间, 停留时间的统计分布服从对数正态分布

$$v_F = \begin{cases} 0 & \text{if } t_{\text{press}} < \text{DELAY} \\ \left(\frac{t_{\text{press}} - \text{DELAY}}{\text{DURATION}} \right)^2 & \text{if } 0 < t_{\text{press}} - \text{DELAY} < \text{DURATION} \\ 1 & \text{Otherwise} \end{cases}$$



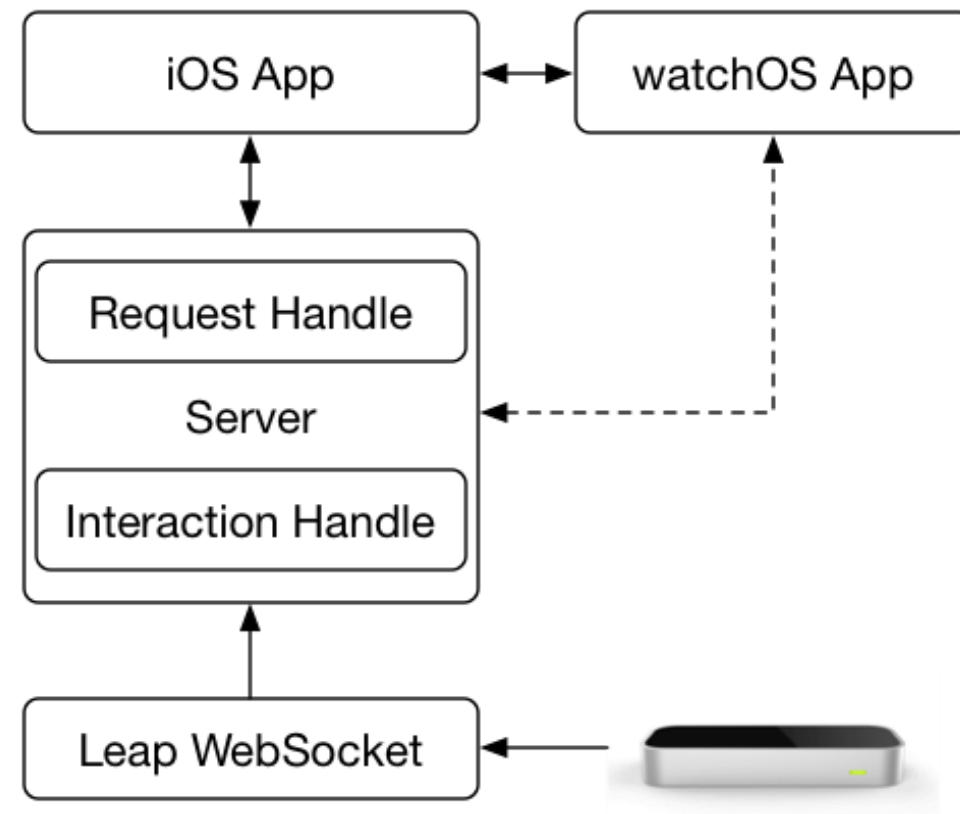
Original Design v.s. Alternative Design



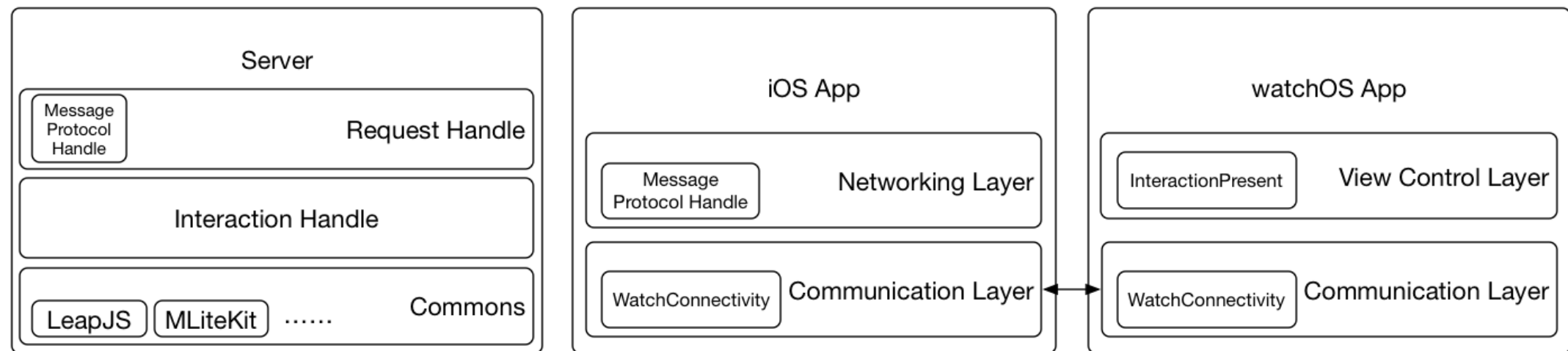
2

核心实现

Implementation



Communication Logic



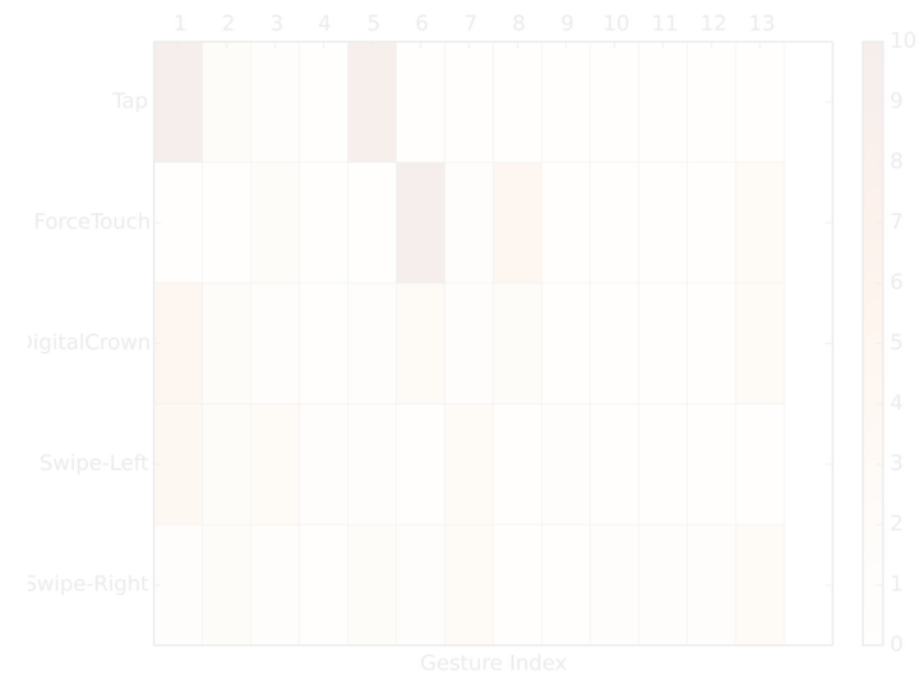
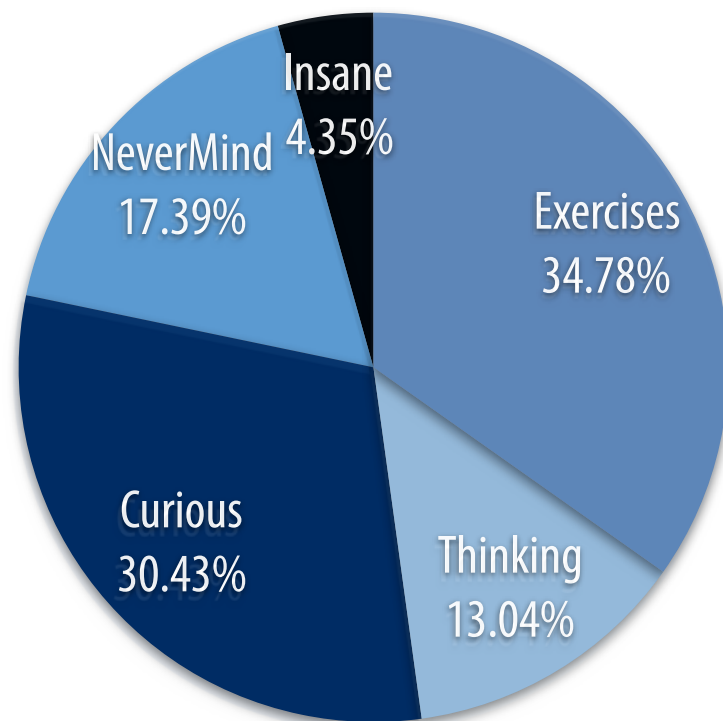
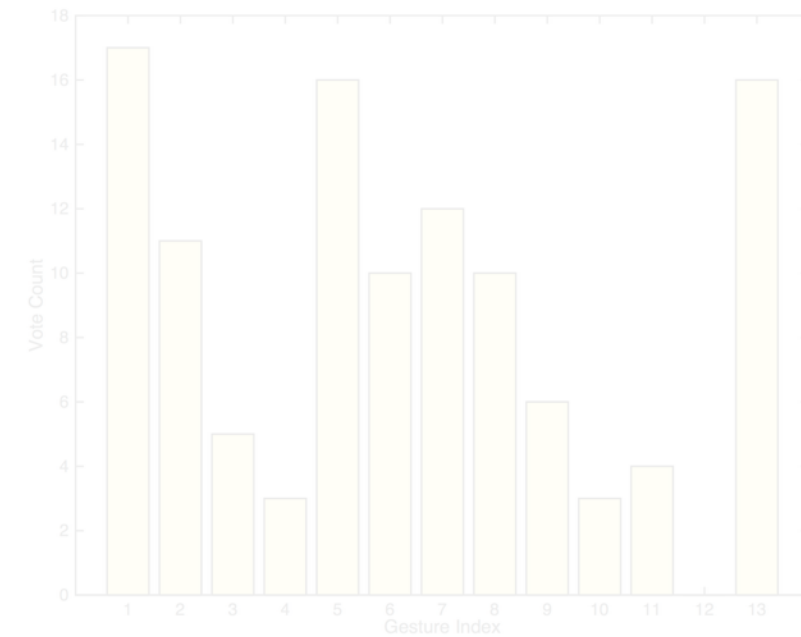
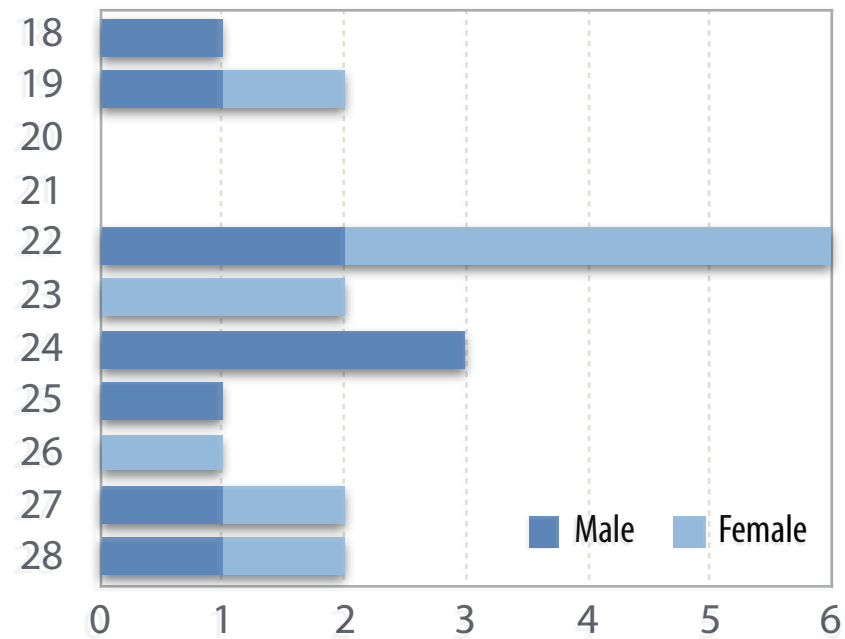
Server Side, Phone Side and Watch Side



3

用户调研

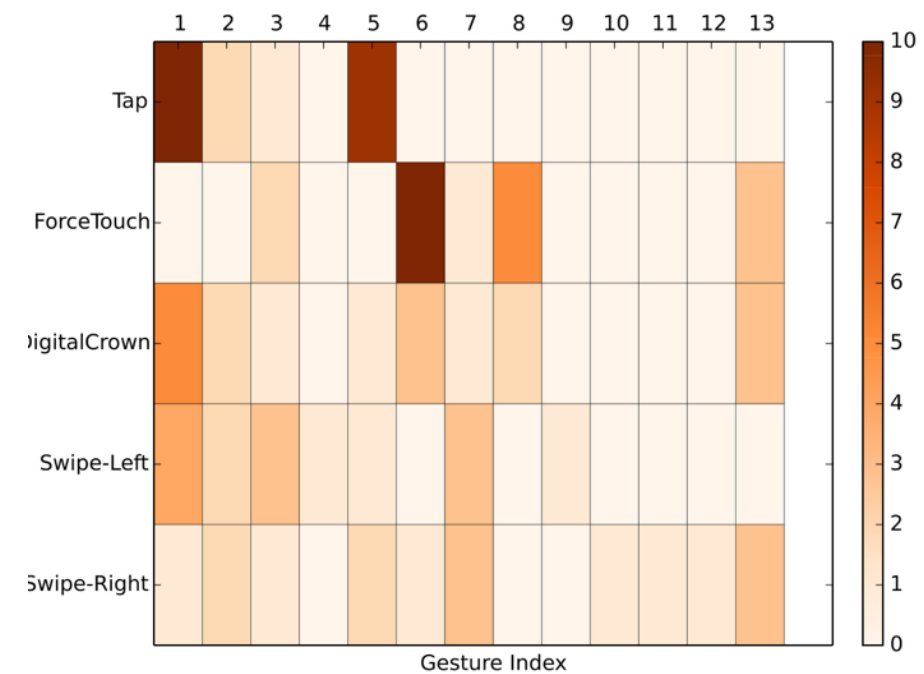
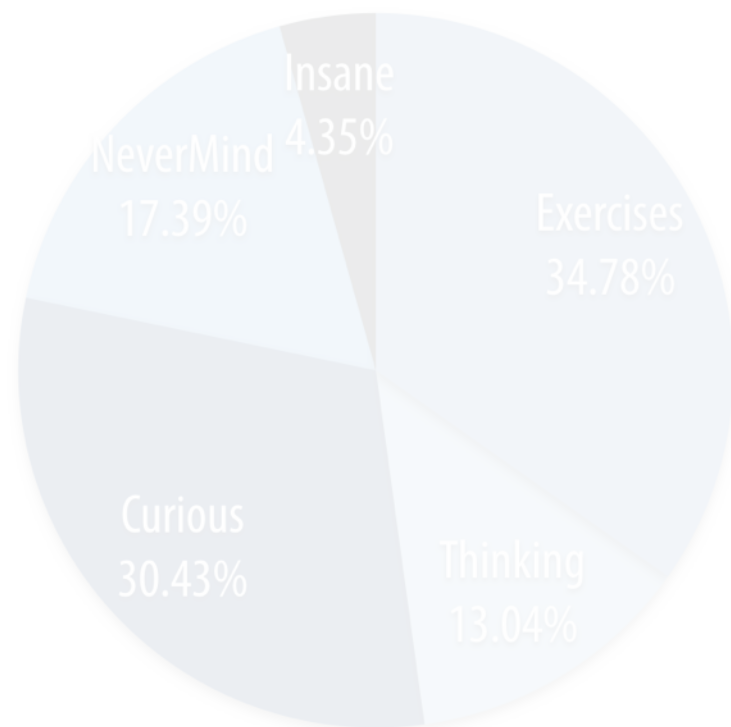
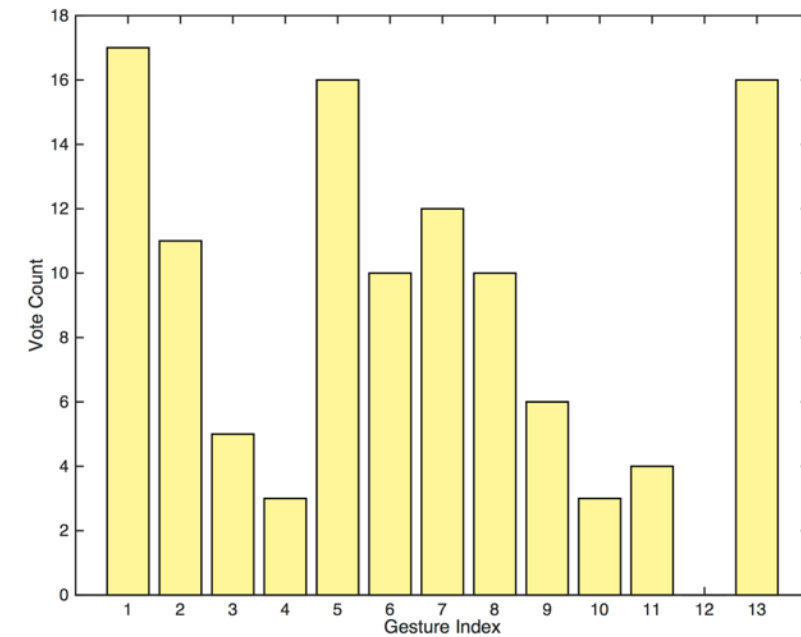
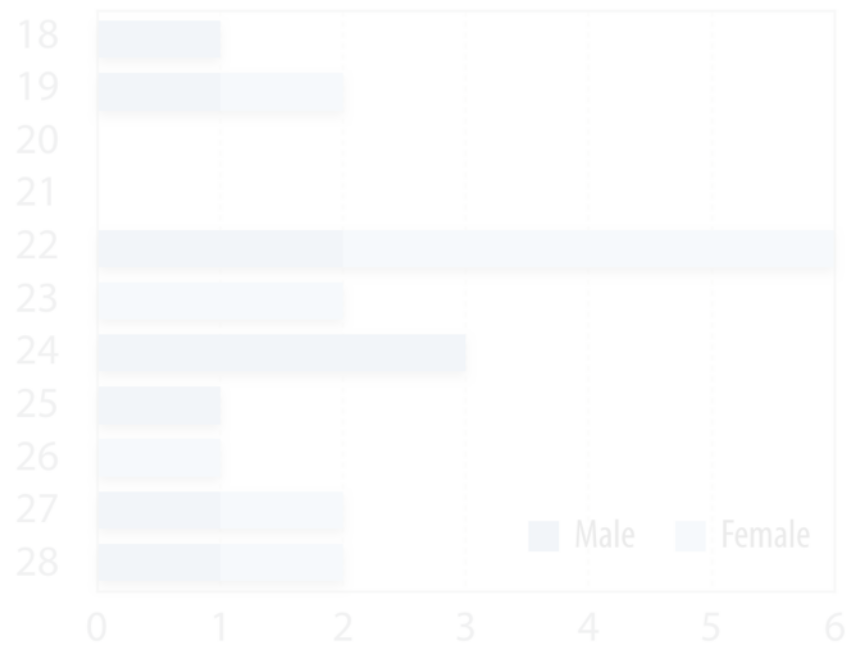
User Study

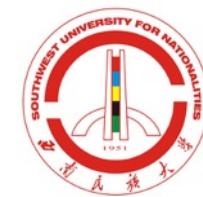


参与者/社会接受度/舒适与直觉

Participants/ Social Acceptance/ Comfortable and Instinct

3

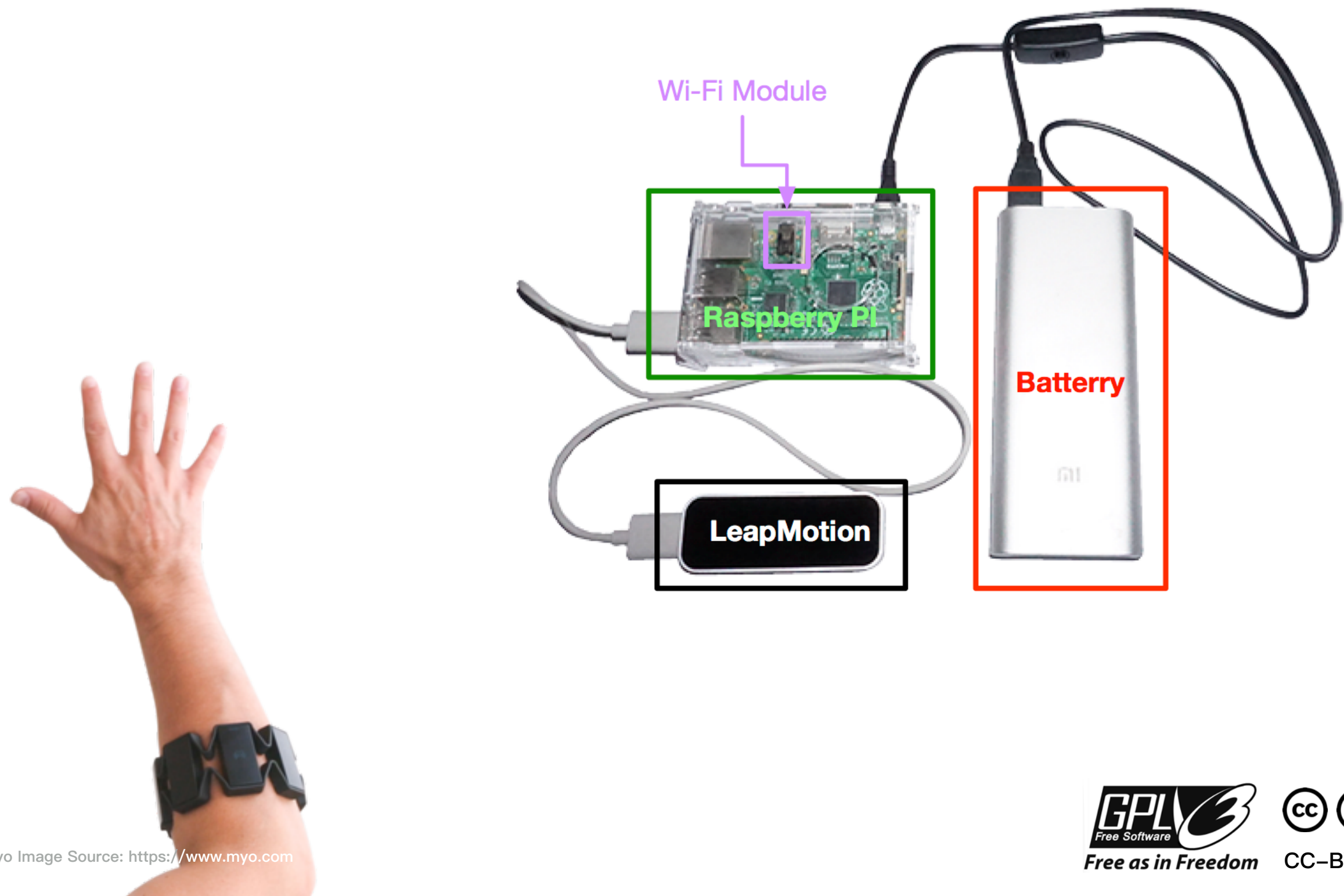


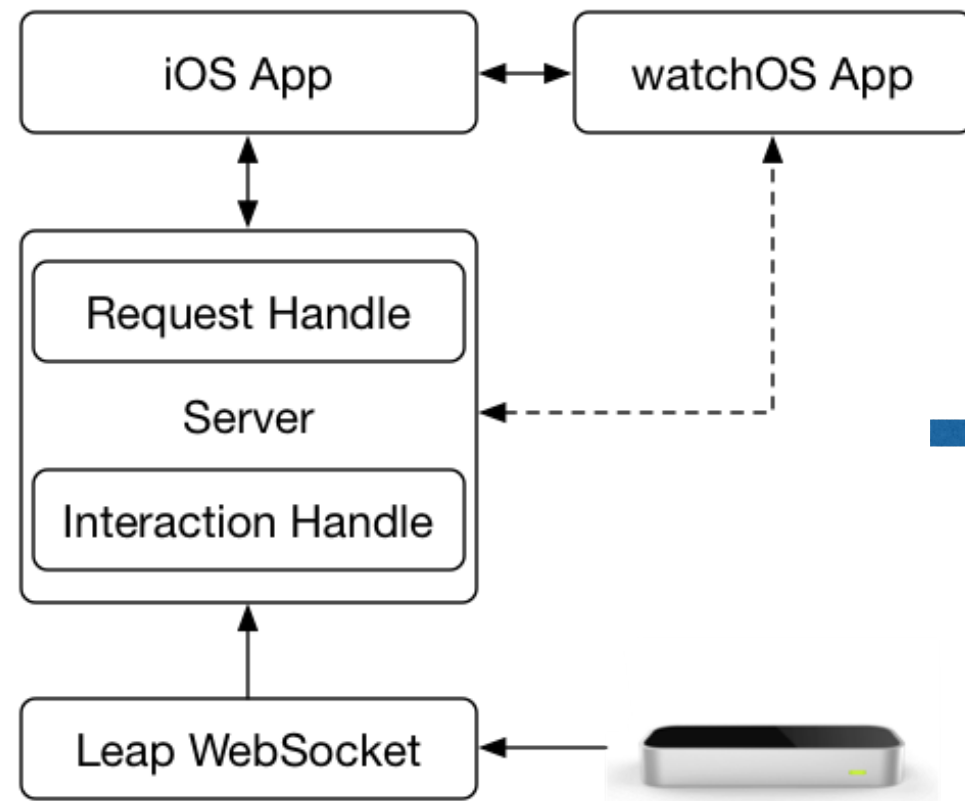


4

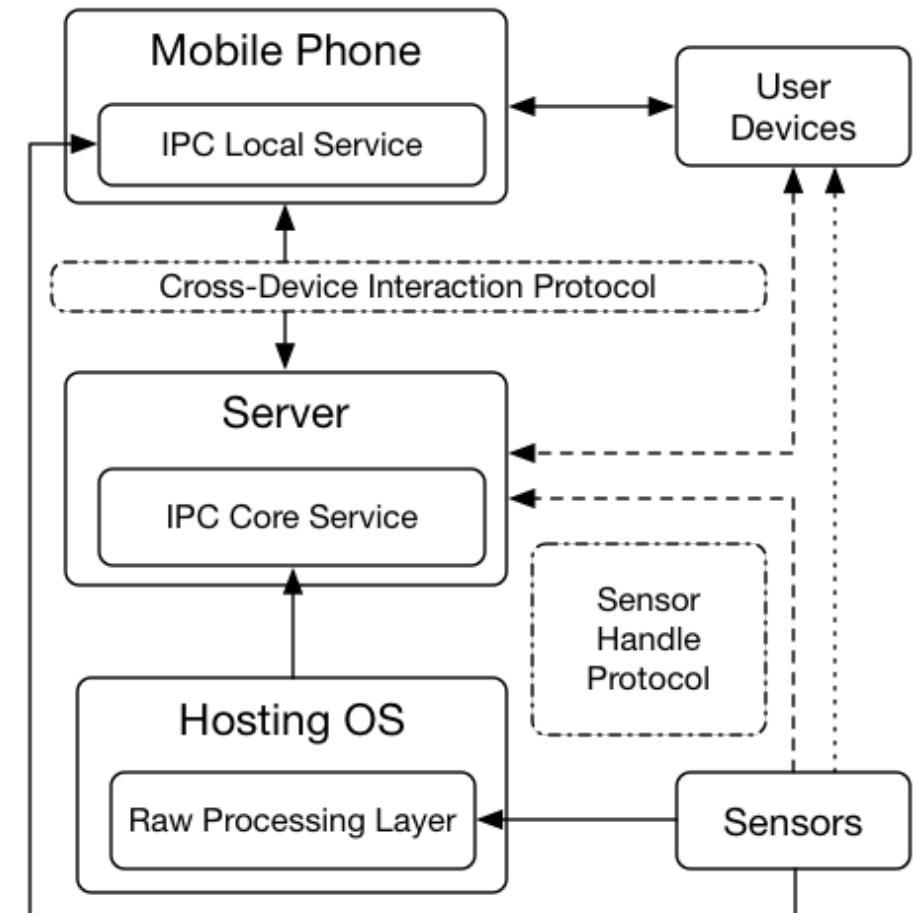
进一步工作

Future Works





Communication Logic



Universal Communication Logic



E

本次设计中析出的项目

External Projects

[1] **SWUNThesis**: A LaTeX Thesis Template for Southwest University for Nationalities,
<https://github.com/changkun/SWUNThesis>, LGPLv3.0

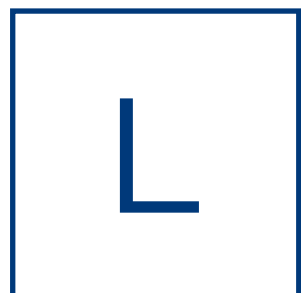
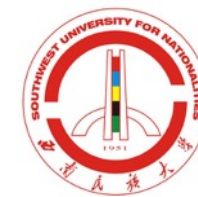
[2] **LeapMotionDocCN**: LeapMotion SDK Documentation Translation, Python/C++/ObjC/JS,
<https://github.com/changkun/LeapMotion-Doc-Chinese>, CC4.0



Free as in Freedom



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现场演示

Live Demo



Thanks and Never Ends.

Here's to the crazy ones.

The misfits. The rebels. The troublemakers. The round pegs in the square holes. The ones who see things differently.

They're not fond of rules. And they have no respect for the status quo. You can quote them, disagree with them, glorify or vilify them.

About the only thing you can't do is ignore them. Because they change things.

They push the human race forward. And while some may see them as the crazy ones, we see genius.

Because the people who are crazy enough to think they can change the world, are the ones who do.



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