

Demo: Enabling Dynamic Gesture Mapping with UI Events

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Abstract

We demonstrate Gesto, a dynamic gesture mapping tool. It provides users to map any gesture to a certain UI event that the users need. Also, the mapping can be easily changed by users.

1. INTRODUCTION

On mobile devices, a user can interact with an app using UI events such as button clicks or text input. However, it is often hard for a user to perform UI actions directly on a device. For example, a user may need to perform UI events while exercising or when wearing thick gloves. To address this issue, many researchers proposed to use gestures such as shaking to enable a new mode of interaction between a user and an app [1, 3, 4]. However, previous approaches all have a limitation that gestures are mapped statically to certain UI elements, and users cannot easily configure the mappings.

Gesto is a new system that allows dynamic mappings between gestures and UI events. Users can easily change the mappings whenever they need.

2. ARCHITECTURE OVERVIEW

Gesto allows various gesture APIs that users can map with UI events. Gesto consists of two parts which are recording and performing. When a single wave gesture is detected, Gesto waits for a gesture to map with UI events. After a certain gesture was detected, Gesto goes to the launcher activity and records the sequence of user input. Gesto can detect all UI elements and save which UI element is used by users. It also saves activity hierarchy, which shows all activities opened during recording, starting with main activity. This approach is similar to uLink [2], but we use it for correct recording of UI events to map with gestures later, not a deep link. The recording is turned off by double wave. All the UI events that users do are saved during recording. Once the gesture is successfully mapped with some UI events, the saved UI events can be performed by triggering gesture as shown in Figure 1. Gesto firstly checks if the gesture is mapped with some UI events. If not, it informs that no UI event is mapped for that particular gesture. If yes, it goes to main activity and loads a saved activity hierarchy. Then, it sees which UI events were recorded by users. After performing

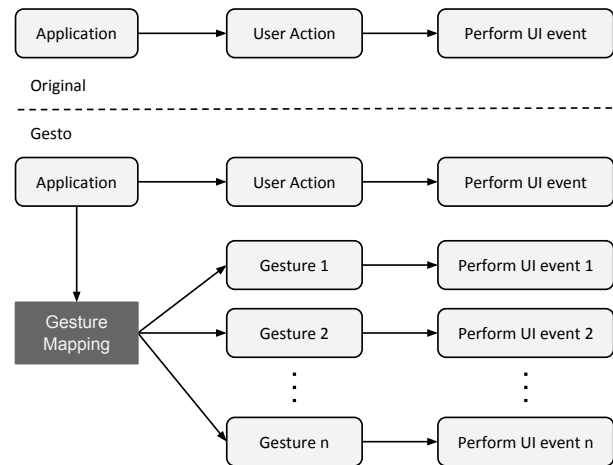


Figure 1: Gesto Architecture

all UI events for a certain activity, it moves to another activity and does the same task. After performing all saved UI events, Gesto ends. By triggering a previously-used followed by a single wave, it overrides the previous mapping and records a new mapping.

3. DEMONSTRATION

In this demo, we will show how easily users can map various gestures with UI events. We will test several apps to show that Gesto can detect all UI elements and successfully map those with gestures. Also, we will show the UI events are actually performed when mapped gestures are triggered.

4. REFERENCES

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