

TouchTap™

INPUTDYNAMICS LTD



TouchTap™ by InputDynamics is a new user interface; it's a **software-only upgrade** for smartphones and tablets, which uses the existing handset hardware. TouchTap™ scans the microphone and other sensors' streams for **taps** (single/double/triple) imparted by the user **anywhere on the handset**, to implement commands and shortcuts quickly.

TouchTap™ and the limitations of the existing User Interfaces(UIs)

There are two fundamental shortcomings with the traditional touchscreen-centred UI as follows:

- the hand holding the device is generally passive and underutilized (unless the user is using both hands to input text or playing a game with two thumbs, or perhaps taking a selfie); and
- it is not easy to invoke shortcuts.

LG has been addressing these issues with a hardware button on the rear of the handset (Smart Rear Key). Huawei is implementing on some of its handsets the FingerSense UI, which makes it easier to invoke commands and shortcuts on the touchscreen but still excludes the holding hand from the user interaction with the device.

TouchTap™, on the other hand:

- fully brings the holding hand into play by enabling **several areas** of the handsets to become **fast-acting** soft-keys (single/double/triple taps) compared to a **single** and **slow** hardware button on the back of the handset; and
- is not limited to the touchscreen as FingerSense is.

Below are few examples of use cases enabled by TouchTap™:

DEVICE HELD WITH ONE HAND

Tapping on the back of the handset with the index finger of the "holding hand" enables to:

- switch between keypad layouts or between lower/upper case when inputting text;
- cycle through selection options when long pressing on the touchscreen;
- direct a character in a game to shoot, jump, or other when playing a game;
- scroll to next without smearing the screen with finger grease when browsing documents or pictures;
- take pictures and selfies ergonomically single-handed, and so on;

Tapping on the edges or corner of the handset with the index finger of the "free hand" enables to:

- launch menus, commands or customized shortcuts.

DEVICE HELD WITH BOTH HANDS IN LANDSCAPE

Tapping on the back of the handset with the index fingers or tapping on the top corners with the thumbs allows to:

- achieve extra input functionality when playing a game (the equivalent of the shoulder buttons on a PS4 controller).

OTHER USE CASES



TouchTap™ also works when the handset is in your pocket, enabling you to reject a call or pause the track you are listening to, for example. It also enables you to interact with your handset when wearing gloves.

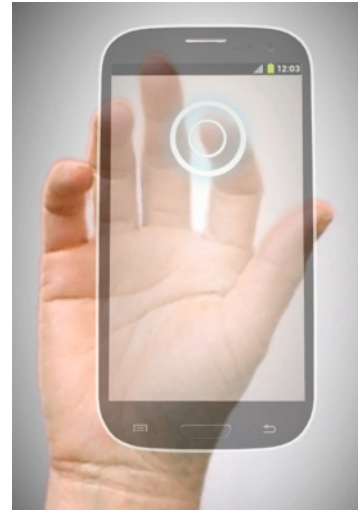


How does TouchTap™ work?

TouchTap™ has been developed in conjunction with the Signal Processing Department from the University of Cambridge.

Different areas of a handset have different acoustic fingerprints and therefore produce different sounds when tapped upon, which can be detected by the TouchTap™ recognition engine.

The TouchTap™ recognition engine uses sophisticated statistical models to isolate taps from the user by filtering out unwanted noise and vibration, and by compensating for different tapping styles and variations in environmental conditions. A one-off simple and fast training routine upon installation is designed to optimize the use of single, double or multiple-tap input functionality for various locations.



ABOUT INPUTDYNAMICS

InputDynamics aims to make TouchTap™ the global industry standard for casework input functionality by selling apps & merchandise and by partnering with developers, operating system vendors and handset/tablet/touchscreen controllers /multimedia hub manufacturers.

Additional enhancements to TouchTap™ are needed to further reduce battery consumption, make the training routine slicker, as well as to further improve the recognition rate in challenging environments, such as at a concert or a disco with very loud music.