**VISVESVARAYA TECHNOLOGICAL UNIVERSITY**

**BELGAUM**



**A synopsis on**

**SKINPUT**

Submitted in partial fulfillment for the award of the degree in

## 

## Bachelor of Engineering

In

**COMPUTER SCIENCE & ENGINEERING**

By

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### CERTIFICATE

**Certified that the seminar entitled SKINPUT carried out by Miss Megha Rathore (1NC07CS040), a bonafied student of Nagarjuna College of Engineering and Technology in partial fulfillment for the award of Bachelor of Engineering in Computer Science & Engineering of the Visvesvaraya Technological University, Belgaum during the year 2011. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report submitted in the departmental library. The project report has been approved, as it satisfies the academic requirements in respect of project work prescribed for the said Degree.**

**Name & Signature of the Guide Name & Signature of the HOD Signature of the Principal**

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## ABSTRACT

Skinput is a technology that appropriates the human body for acoustic transmission, allowing the skin to be used as an input surface. In particular, the location of finger taps on the arm and hand is resolved by analyzing mechanical vibrations that propagate through the body. These signals are collected using a novel array of sensors worn as an armband. This approach provides an always available, naturally portable, and on-body finger input system. The capabilities, accuracy and limitations of this technique are assessed through a two-part, twenty-participant user study.

**INTRODUCTION**

Devices with significant computational power and capabilities can now be easily carried on our bodies. However, their small size typically leads to limited interaction space and consequently diminishes their usability and functionality. Since we cannot simply make buttons and screens larger without losing the primary benefit of small size, we consider alternative approaches that enhance interactions with small mobile systems. One option is to opportunistically appropriate surface area from the environment for interactive purposes. For example a technique that allows a small mobile device to turn tables on which it rests into a gestural finger input canvas. However, tables are not always present, and are not usable in a mobile context,However, there is one surface that has been previous overlooked as an input canvas, and one that happens to always travel with us: our skin. Appropriating the human body as an input device is appealing not only because we have roughly two square meters of external surface area, but also because much of it is easily accessible by our hands (e.g., arms, upper legs, torso).

Skinput is a method that allows the body to be appropriated for finger input using a novel, non-invasive, wearable bio-acoustic sensor

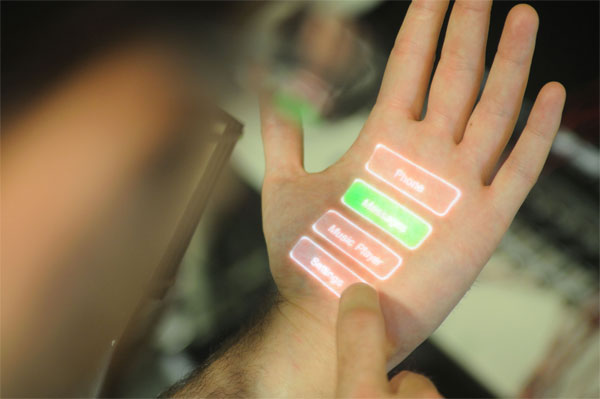
In Skinput, a keyboard, menu, or other graphics are beamed onto a user's palm and forearm from a pico projector embedded in an armband. An acoustic detector in the armband then determines which part of the display is activated by the user's touch. As the researchers explain, variations in [bone density](http://www.physorg.com/tags/bone+density/), size, and mass, as well as filtering effects from soft tissues and joints, mean different skin locations are acoustically distinct. Their software matches sound frequencies to specific skin locations, allowing the system to determine which “skin button” the user pressed.

The [prototype system](http://www.physorg.com/tags/prototype+system/) then uses [wireless technology](http://www.physorg.com/tags/wireless+technology/) like Bluetooth to transmit the commands to the device being controlled, such as a phone, iPod, or computer. Twenty volunteers who have tested the system have provided positive feedback on the ease of navigation. The researchers say the system also works well when the user is walking or running.

**CONCLUSION**

Skinput technology provide an always available mobile input system – that is, an input system that does not require a user to carry or pick up a device.

Using skinput technology human body can be appropriated as an input surface to any of the devices, system performs very well for a series of gestures, even when the body is in motion.



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