



# CASE STUDY ON PHYSICAL INTERFACE FOR THE WEB

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## ABSTRACT:

As the media like actual video in the web becomes more and more frequent, the importance of physical interface using our whole body through the video has been increased. In this regard, the study has been conducted in order to implement the physical interface for the web.

## 1. INTRODUCTION

In the web, we can communicate through the standard interface using the information expression part like the digital screen and input devices like mouse and keyboard under the control part. This study has started from a curiosity whether it is possible to make physical interface through the use

of video information from web cam which is commonly used and achieve effective communication through it.

## 2. CASE STUDY

In the standard interface, the control part (e.g. mouse and keyboard) that is used as input device is separated from the information expression part. On the other hand, in the case of utilizing video information as interface, it is possible to combine the control part with the information expression part.

### 2. 1. COMPUTER VISION

In the case of using web cam for the physical interface, the input video can be analyzed and expressed in two methods in order to implement an interaction between the user and the interface. The first method is by tracking relative trace of input video and expressing a trace. The second one is by tracking the pixel's absolute value of input video from the web cam.

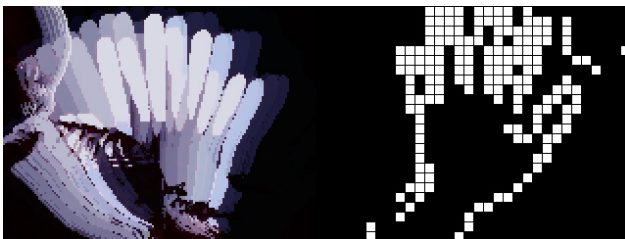


Figure 1: Analysis of input video.

Since the second method takes more calculation in tracking the pixel's absolute values than the first one, it is more applicable to use the first method in the web.

### 2. 2. METHODS OF EXPRESSING VIDEO

Methods of expressing video can be classified into three kinds. The first method is showing actual images without any change. The second shows the trace of the user's movement expressed in real video and the third shows the user's shape expressed in real video.



Figure 2: Three ways of expressing video.

## 2. 3. PHYSICAL INTERFACE FOR THE WEB

We developed the physical interface based on the aforementioned analyzed methods.



Figure 3: Three kinds of interface in website.

The interface using actual video (method 1) can be more obvious than the rest but have less concentration on contents. In the case of using a trace of the user's movement, the user can concentrate on contents easily but could not be able to identify where the interaction point is.

And we developed various types of application for the web like games using physical interface. Another examples are the web application based on physical interface that user can take a picture from a remote distance and the web application which is like a kind of musical instrument that the user can handle by their actions.



Figure 4: Web applications using physical interface.

## 3. CONCLUSION

We could confirm that it is possible to make physical interface using web cam which is commonly used nowadays. Since the physical interface supports perceptive interface, the user doesn't have to learn how to control it and can manage interface from a remote distance. Also, we implemented web application that was distinguished from other contents through the methods being studied.

## REFERENCES:

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