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## Interactive Art that informs the seriousness of cyber verbal violence - 'Blame'

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### Abstract

*In the cyber space represented by Sns, the problem of cyber verbal violence, which sends slander messages such as abusive messages through chats, bulletin boards, malicious comments, and messages, is getting worse. Leveraging the power of cyberspace's anonymity, people can't hesitate to say what they can't say in the real world. In extreme cases, cyber verbal violence can lead to the death of a person. This paper focuses on the creation of media content that helps to inform and prevent the seriousness of cyber verbal violence prevalent on the Internet through interactive art.*

*The nature of Interact art goes beyond the work and the audience to the people in the relationship between the work and the participants, allowing participants to directly and indirectly feel the seriousness of cyber verbal viol*

**Keywords:** Verbal Abuse, Interactive Art, Media Contents, Prevention

## 1. INTRODUCTION

### 1.1 Research Background

According to a recent survey of university students about 'internet commentary culture', about 30% of them have been keyboard warriors with Malicious comments, and 8.1% said that they just enjoyed Malicious comments. It is a play culture. 'Of course, 68% of the vast majority agree that the current Internet comment culture is a paradise for "keyboard warriors" and that the level of Malicious comments is very low. However, people do not have much interest in cyber language violence openly in cyberspace because it is not directly related to them. This means that most people are just bystanders from the incident.

In this thesis, we propose 'interactive art that informs the seriousness of cyber verbal violence'. I would like to help face the seriousness of the problem by encouraging direct participation in the work as a participant in cyber language violence, not a bystander of cyber verbal violence. Interaction means mutual influence.

Interaction refers to a phenomenon in which forces act on each other to cause and effect each other. It is

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necessary to interpret the meaning again in the limited scope of space and design. Interaction in space is directional communication between space and people, and things and people. Therefore, unlike the audience's appreciation of the existing works of art faced with and accepting the works, 'interactive art' takes a more active and active attitude because the viewer's intervention acts as a driver to change the form of the work. The moment the viewer takes an active and active attitude toward the work, the viewer is no longer a third person viewing the work separately, but becomes a participant of the work, that is, part of the work.

## **2. MAIN TEXT**

### **2.1 Purpose of Research**

One of the most noticeable Internet expressions is comments. Comments can be said to have led to the formation of Korean discourse culture and public opinion since 2000. "If the history of the Internet is the history of comments, on the other hand," History of the Malicious comments "(Hwang Yong-seok, 2007)," Malicious comments "has caused serious problems in our society. [3] Malicious comments, a kind of comment, are formed and expressed in cyberspace and are cultural phenomena due to the characteristics of cyber media such as the interactivity, anonymity, non-face-to-face, and deprivation of the Internet. [4] Cyberspace should be able to express individual opinions freely. Unreasonable regulation will limit the basic rights under the Constitution. However, it is never desirable to protect serious insults beyond certain limits in the name of freedom of expression. Everyone agrees that we should not tolerate insulting behaviors that cause catastrophic damage, and malignant comments with swear words and unfounded slurs beyond certain limits.

[5] The Internet is characterized by many-to-many communications, real-time information updates, easy access to huge information, unlimited time and space, and multimedia information, which further accelerate the growth of the Internet. In recent years, the importance of Internet communication is growing. The reason for this is that the information on the Internet is much larger than the offline one, the accessibility is good, and the information sources are diverse. This has a much stronger impact on purchasing decisions and the formation of a corporate image.

[6] The purpose of this study is to remind people how serious cyber language violence is. People can realize this by looking at the problems of cyber verbal violence, one of Korea's long-standing social problems, and the tragic consequences of such problems.

### **2.2 'Blame'**

#### **2.2.1 Progress of 'Blame'**

Smartphones allow people to access various social networks anytime, anywhere, and communicate rumors to others with just a few simple actions. As such, in modern society, many people are easily exposed to rumors, and at the same time, anyone has the ability to easily spread rumors.

[9] In order to visually express these points, this work starts with this rumor, "This is a really bad kid. Please swear this child". Arduino connected with a Bluetooth sensor receives a smartphone's signal and the user directly enters text.

#### **2.2.2 Research scope**

mobile phone limited specific content of  $\frac{1}{2}$

## 2.3 Content workflow

### 2.3.1 Visual Interface



**Figure 1. Starting screen of blame**

The work begins with a clear sky blue background. A girl stands on the roof of a building. "This is a really bad kid. Curse this child." This text appears to the right of the girl. At this point, the interesting part is the text, "This child is really bad." The message uses the expression "somebody says," not "is," and does not tell the user whether the girl is really a bad child or not.

Eventually, the participant starts to criticize the girl after hearing that the girl is a bad child without even confirming whether or not the girl on the roof of the building is really a bad child. This type of criticism takes the form of witch hunts in cyberspace, which has become a problem recently.

### 2.3.2 Sound Interface



**Figure 2. Change of Background color after blame 1**



**Figure 3. Change of Background color after blame 2**

When he began to blame the girl, the background of the work became dark red overall. Exactly red and dark red screens alternate like a human heartbeat. The background color of the heartbeat that appears at this time is not only the heartbeat of the girl who is approaching death, but also the heartbeat of the participant who feels pleasure and criticizes the girl.

The change of background color symbolizes the change of the girl's feelings in the work. In the girl's appearance on the start screen of the work, the user still does not know how the girl feels. However, as soon as the background color of the work changes from the clear sky blue screen to the dark red color, the user can infer that there is some change in the girl's feelings and the changed girl's feelings can never be positive.

### 2.3.3 UI



**Figure 4. Text and Effect appearing after 'Blame'**

Along with the change in the background color of the work, the participant sent criticism to the girl. The criticisms hurt the girl and do not leave the girl's mind throughout the work. The wounds the girl receives are described in the form of blood appearing around the girl's body, and the criticism of the girl who does not leave her mind is expressed through the text rotating around the girl.



**Figure 5. 'Big text' appearing after 'Blame'**



**Figure 6. 'Small text' appearing after 'Blame'**

The work conveys another content of the text. Rather than creating a large text input from a user and then decreasing its size, the work shows a large text and then shows the message that the text is trying to convey as new small text.

There are two main texts in the work. One is "big text," which appears when a user criticizes a girl. The other is "small text," which appears around the girl after the blame ends. In this case, 'big text' symbolizes the blame the user has given to the girl. The critic does not try to remember much of what he said.

As a result, the "big text" that appears in the work appears for a while and then slowly disappears. On the other hand, 'small text', which constantly rotates around the girl, does not disappear until the girl dies. This is distinct from the "big text" that appears earlier. It means the wound left deep in the girl's heart after listening to the user's words, not the girl.

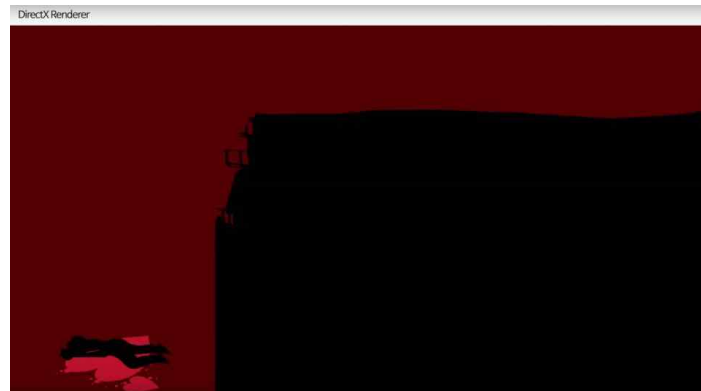
In some cases, the violence that drove the victim to death was nothing for the perpetrator. To the assailant, the blades thrown for a moment of pleasure come as a permanent wound to the victim. "Large text" and "small text" deal with these things symbolically.



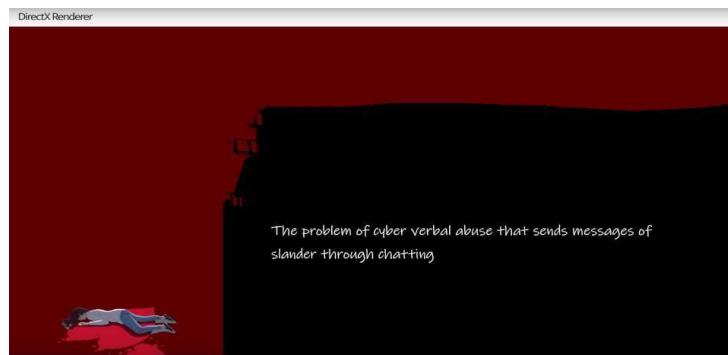
**Figure 7. The last 'Blame'**

Unlike the other blames shown earlier, the last blame has the characteristic of not disappearing. The last blame fills the screen beyond the dead. This last text, which does not disappear, has the symbol of 'remembered and not forgotten'. The other blames that appeared earlier were just words that would hurt the girl.

But the last message sent by the user is a decisive word that ultimately leads to the girl's death. Eventually, the last word that caused the girl to die is to approach the user in a different way from other blame that has been 'spitted and forgotten'. The final blame shows that the user's blame is the decisive factor in the girl's death, making the user a killer.



**Figure 8. Death of the girl**



**Figure 9. Message delivery through girl's death**

As a result of the continued criticism the girl jumps out of the building and eventually dies. As soon as the girl dies, the screen displays the message "Cyber Violence, Driving a Person to Death." This is the final message that this work intends to convey.

In the final scene, the girl's death slowly reveals the most important message, 'Cyber verbal violence, driving a person to death'.

Through this, I would like to convey the following. A girl who suffered from cyber language violence committed suicide, but no one knows. When the girl's death is known to people through the media and various 'SNS', people realize that this problem is a big social problem, not an individual problem.

At the end of the work, the message slowly disappears, signifying that although we all realized that a girl's death was a social problem, it was forgotten in our society unresolved.

#### 2.2.4 Interact Elements in 'Blame'

There are two main interactive elements in this work. The first is the input of text through the smartphone. Most cyber verbal and SNS verbal violence is written on Mobile Devices such as smartphones and tablet PCs. To visually express this, this work devised a way to input text by receiving a smartphone's signal through Arduino with a Bluetooth sensor connected.

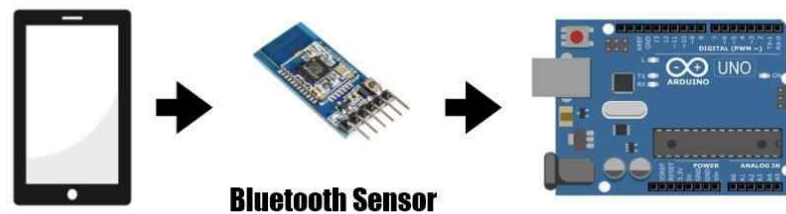
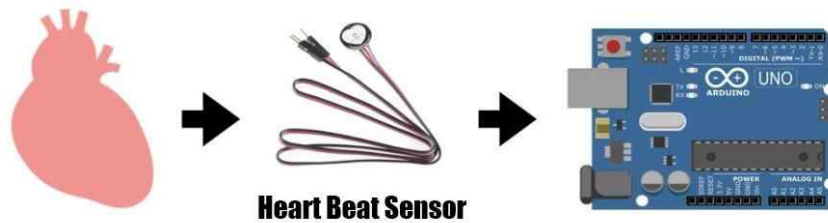


Figure 10. Text input using a smartphone

The text value input from the smartphone is transmitted to the Bluetooth sensor through a mobile application that delivers the text in a Bluetooth manner. The text value thus received is inputted into the vvvv source code of the work through Arduino to interact with the work.

According to a previous study on the screen switching effect, the screen switching effect affects the excitement emotion. Switching between screens is fun, impressive and efficient. Lee, Jae-Myung and Lee, Joo-Hwan (2014) studied the level of user acceptance for screen switching speed. According to the study, the larger the display size, the higher the age of the user, the higher the tolerance level for the response rate when moving than when stationary.

Regard to this, we made the clear sky blue background changed to red and the color changed according to the thumping heartbeat.



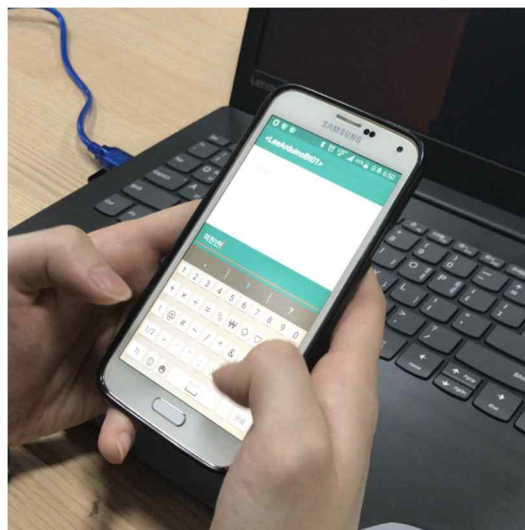
**Figure 11. Tension directing using heartbeat**

The second Interact element is a heart rate sensor. At the bottom right of the work is an icon that represents the heartbeat. This heart is the heart of a child who appears in the work, and at the same time, the heart of the participants who participate in the work. It is the heart of a child suffering from cyber verbal violence and dying, and heart of someone hiding in a virtual wall 'cyber space' and cursing someone and feeling pleasure. In order to visually express these elements, this work devised a way to visually express on the screen the participant's heartbeat signal in Arduino connected with a heart rate sensor.

### 2.3 Prototyping

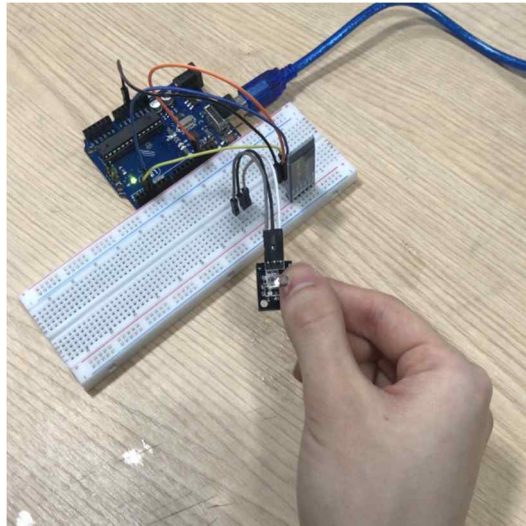
Media is a tool for communication. The development of tools due to technological progress has produced the kind of media referred to in various forms such as new media, digital media and mobile media. Each form of these media, as McLuhan mentioned in his book, has its influence as a message.

Among them, the work called Blame is interactive art in the form of digital media. In order for the audience to be most immersed in the work, they have to participate directly in the work, thus adding elements that the work and the audience can interact with.



**Figure12. Interacting with the work through the smartphone Bluetooth linkage**





**Figure 13. Interact with heart rate sensors**

[7] 'Blame' interacts with the user directly using a smartphone with Bluetooth. The biggest feature of the mobile phone is that it is a personal one-to-one media. Such individual media have endless possibilities to surpass existing mass media in terms of interactive media that deliver personalized information. Mobile phones have great meaning in that they are media that they manage themselves before they wake up and go to sleep.

[8] Existing public marketing campaigns were not effective because people could not be immersed in the content. Therefore, the text input by the user directly to the smartphone is supplemented by outputting to the VVVV renderer through the Bluetooth sensor mounted on the Arduino.

```

mobile_send_Msg_to_Arduino
mobile_send_Msg_to_Arduino $
#include <SoftwareSerial.h>

int blueTx=5; //TX;
int blueRx=2; //RX;
int led = 18;
SoftwareSerial mySerial(blueTx, blueRx);
String myString="";

void setup() {
  Serial.begin(9600);
  mySerial.begin(9600);
  pinMode(18, OUTPUT);
}

void loop() {
  while(mySerial.available())
  {
    char myChar = (char)mySerial.read();
    myString += myChar;
    delay(5);
  }
  if(myString.equals("1"))
  {
    //Serial.println(myString);
    if(myString=="1")
    {
      digitalWrite(18, HIGH);
      Serial.println("1");
    }
    else if(myString == "2")
    {
      Serial.println("2");
    }
    else if(myString == "3")
    {
      Serial.println("3");
    }
    else if(myString == "4")
    {
      Serial.println("4");
    }
    else Serial.println("0");
  }
  myString=""; //reString
}
  
```

**Figure 14. Source code to send value from smartphone to Arduino**

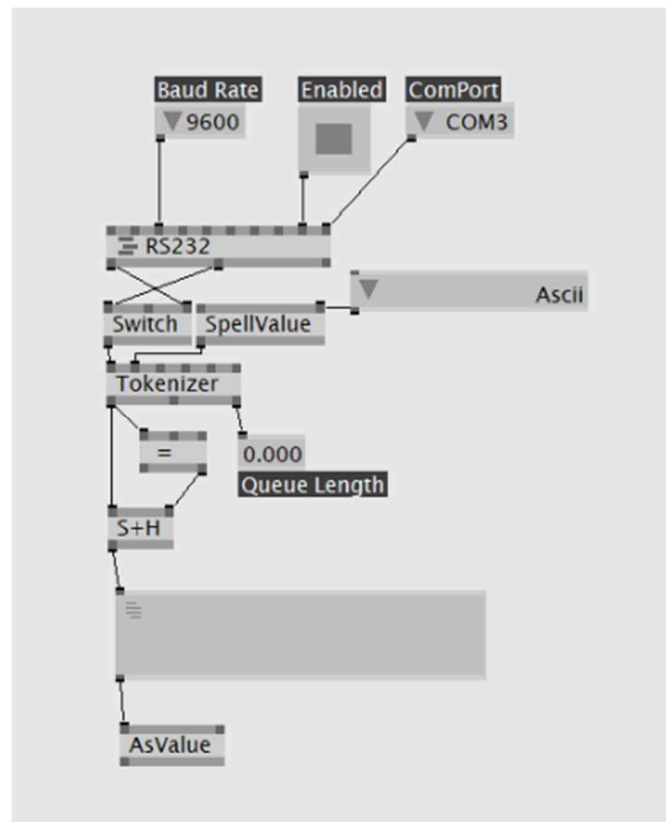


Figure 15. VVVV source code to get the value from Arduino

Campaigns using these interactive arts naturally encourage people to participate in their work. It is not just a spectator but a participant that helps you to be more immersed in your work.

### 3. RESULT

With the development of information technology, the Internet has made human life easier and more convenient than ever before. Anonymity guarantees that information is misused and misused, making it easier to hurt and damage others. The side effects are as big as the influence of the Internet, but people do not realize the seriousness of 'cyber verbal violence' socially. It may be a stress relief, an expression of anger in an anonymous space for someone, but it is a serious problem that leads to a wound or death that cannot be washed away by someone else.

But if these problems are legally regulated by the state, this will only cause another problem. In order to reduce current side effects, it is necessary to improve voluntary awareness among internet users. Therefore, I chose to participate directly so that I could stay in my head without forgetting it. If Internet users can improve their perception of cyber verbal violence by experiencing "Blame", I think it is meaningful in itself, even if it is a minor change. That was the reason for this campaign. If I add other situations or detailed contents to this, I think the work will be more convincing than now. Therefore, more research and ongoing attention is needed.

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