Performance Technology Report

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ABSTRACT
In his 1985 book 'Amusing Ourselves to Death', Neil Postman discusses the threat to public health posed by the transformation of news into entertainment. [1] He foresaw the risks of television and the internet long before technology took over, making it hard to fathom living without them. The motivation and process for a system employing Arduino IDE and MAX MSP, with Postman's book acting as a foundation, are described in the following paper. The following system was implemented using the Arduino Starter Kit in an educational setting.

Keywords
Arduino, MAX MSP, Performance, Neil Postman, News

1. INTRODUCTION
Drawing from Neil Postman's pioneering work, 'Amusing Ourselves to Death: Public Discourse in the Age of Show Business', this project explores the intersection of artistic expression, interaction design, and news broadcasting. Using Arduino IDE, MAX MSP, and a variety of sensors, this system and performance analyse the danger of turning news broadcastings into entertainment. Inspired by Postman's warnings about the blurring lines between information and amusement, our project challenges viewers to confront the impact of sensationalised news consumption. [2] We present an interactive art installation that aims to provoke critical thought on the status of contemporary media through a creative blend of technical ingenuity and artistic vision.

2. IDEA AND MOTIVATION
During our brainstorming session, we were drawn to the idea of a performance that would blur the lines between art and interaction design. We aimed to create an interactive art installation that would make a bold statement. After consulting with Alan Ryan, we honed in on the broad theme of news broadcasting, a concept we hoped would set our performance apart.
After reading 'Amusing Ourselves to Death' by Neil Postman, we decided to concentrate on news videos. We choose news videos as we agree with Postman's statement that junk entertainment is not a threat to public health but serious modes of discourse like the news, politics, education and religion on TV are. [1] Postman had already noticed in the 80s that everything was becoming a form of entertainment. While junk TV is supposed to be a form of entertainment, news broadcasts aren't. News being presented as entertainment desensitises the viewer. Postman uses an example in his chapter, 'Now…this,' highlighting the danger of news and entertainment even further. He describes a situation where he is watching the news on a serious topic but is interrupted by a funny advertisement that almost erases the seriousness of the news broadcast just seconds before. [3]
This is why we decided to concentrate on news broadcasts for our video collage.
As the example of the funny ad stuck with us, we decided to incorporate our version of this. After the last video collage of news broadcasting from around the world, the video mixer will switch to an almost ridiculous advertisement for a soda drink. After watching 12 news broadcasts of the Taliban shooting tear gas at protesters, a hostage situation in the Netherlands, and many more serious topics, the viewer is ripped out of the seriousness and presented with an advertisement whose catchy tune will be stuck in your ear for the next hour. Instead of remembering the gruesomeness of today's conflicted world, the viewer will remember the catchy tune of the advertisement briefly shown at the end. This proves Postman's statement that no news can be so devastating that it can't be removed by an easy 'now … this' from the newscaster. [4]
The video collages we edited are cut off and only show part of the video. We chose to do this because the news is often presented in fragments without full context. This is done because of the limited time during news broadcasting and to bring a particular narrative across to entertain the viewer. This causes a general lack of value or seriousness to what is shown. We wanted to highlight this phenomenon by cutting the frame of each newscast.

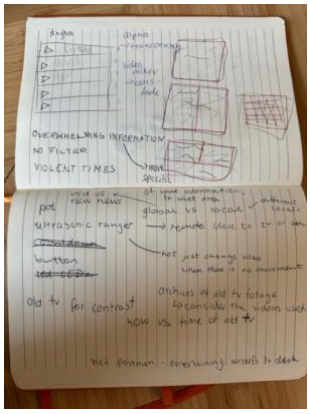

Figure 1 - First sketch of our idea

Figure 2 – Second sketch of our idea

Furthermore, we added a video effect to our Max MSP patch, which blurred the lines between the different videos. We planned to incorporate two effects but decided to stick with the pixel effect only, as it more clearly underlined our point.
Another aspect we decided to include was the gradual change between local and international news. The videos will transition from local news to neighbouring countries to disrelated and global news. This mix of languages and news broadcasts highlights the availability of news and how overwhelming and unfiltered access to the news and news itself has become. The viewer has to filter through all the information rather than only being presented with the news they want to see or ask for.

The LED button we incorporated is supposed to represent the 'On Air' light in a TV studio. When it lights up, the performance is ongoing. If it is turned off, the performance has stopped.

3. PROCESS

Our group, consisting of Yelyzaveta and me, met two times a week for roughly four hours on Monday and two hours on Friday. We got most of our work done during those hours. Yelyzaveta created the video collages while I extracted the audio from each video after she shared it with me.

We created a OneDrive file where we shared every file we used for this project. This allowed us to both have access to the files at all times.

Furthermore, we decided to 3D print cases for two sensors resembling remotes. For the Slider, this was a purely design-based choice, and for the Ultrasonic Ranger, it was a functional choice. As we didn't know the room layout for the performance and at which angle we would be positioned towards the screen, we decided to put the Ranger in a controlled environment, the 3D printed remote, instead of relying on the uncontrollable factor of the room layout for the performance.

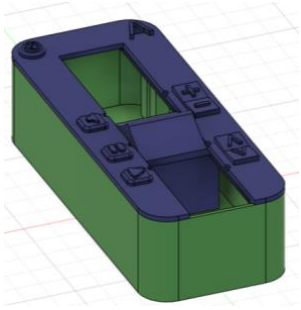

Figure 3 – 3D Model of the the Ranger Remote

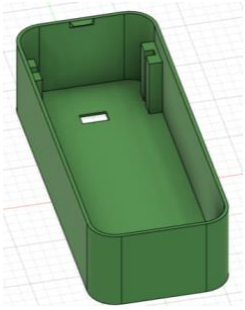

Figure 4 – Inside of the Ranger Remote

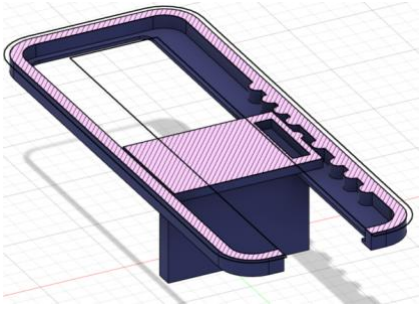

Figure 5 – Mechanism of the Ranger Remote

We originally planned to use two Ultrasonic Rangers to underline our idea with these chosen sensors. The Ranger measures distance, so the closer the person gets to the screen, the more videos play simultaneously, and the more overwhelming and merged the different news broadcastings become.

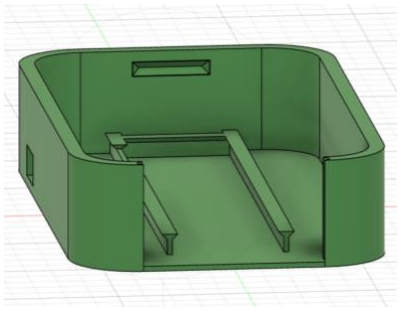

Figure 6 – 3D Model of the Slider Remote

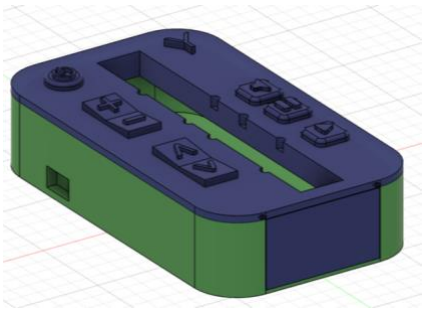

Figure 7 – 3D Model of Slider Remote

As we were unable to get a second Ultrasonic Ranger, we decided to use a Slider. We tried using an Ultrasonic Ranger sensor given to us by another UL student working on a similar project, but the sensor brand was very unreliable, and multiple students in their class were experiencing difficulties. Similarly, we were having difficulties with the reliability of the sensor, which is why we decided against using it.

Figure 8 – First Version of the Ranger Mechanism

Figure 9 - Second Version

Figure 10 - Third Version

The remote for the Ultrasonic Ranger was designed with a mechanism that can reliably and consistently change the distance the Ranger measures. As the Ranger is designed to measure more extensive distances rather than centimetre increments, this was incredibly difficult and took a lot of trial and error. We used masking tape and markers to determine the exact measurements of the Ultrasonic Ranger and Slider.

Figure 11 – Fourth Version

Figure 12 – Fourth Version with the Lid

Figure 13 – Different versions of the Ranger Lid

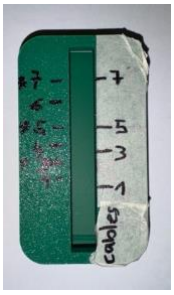

Figure 14 – First Version of the Slider Lid

The Ultrasonic Ranger was still difficult to use for these small distances but paired with the Slider, we could control the video mixer reliably.

Figure 15 – Final Design of the Ranger Remote

Figure 16 – Final Design of the Ranger Remote

During the 3D printing, a range of problems occurred, most relating to the mechanism controlling the Ranger measurements, leading to reprinting the lid several times.
Additionally, we printed some carabiners and a Breadbox case to organise all our cables and have the Breadbox at the same height as the Arduino kit.

Figure 17 – Final Design of the Slider Remote

Figure 18 – Final Design of the Slider Remote

Below are three timelapse videos of the printing process.

Click here to view the printing of the Ranger Remote Lid.
Click here to view the printing of the Ranger Remote.
Click here to view the printing of the Breadbox.

4. THE SYSTEM BUILT

After our initial brainstorming session during the lab and receiving feedback and recommendations from Alan Ryan and Nicholas Ward, we researched news broadcastings we wanted to include in our performance. These were then edited in a collage using Capcut. There, the audio was extracted from the videos and saved separately for the audio playlist in MAX MSP.
We tried a couple of different objects to create a video mixer before lading on the fader with a chooser and cycle object.
The first object combination we tried was the Chromakey and Attrui Tolerance object. They create a chromakey effect based on a reference colour and give control over the resulting combined video. We decided against using these objects to build our video mixer, as this is mainly used to create videos as if a greenscreen was used and not to mix two videos that aren't meant to be combined.
The second object we tried was the AlphaBlend object, which accesses the alpha channels of the input matrix and crossfades between its inputs. We decided against using this object for our video mixer as the help file used only two video inputs and transited between those. We planned to use at least seven videos, so we felt this object was unsuitable.
When we found the MIXFADR effect and combined it with a 'cycle 2' object, we created a video player that easily transitions between any of the seven videos in our chooser playlist. We decided to customise the crossfade by adding a function to our MAX MSP patch and a switch object to the crossfade so it would work in both directions. As we wanted to underline our idea described in 2. Idea and Motivation even more, we added the PIXL8R effect.
Before deciding on the PIXL8R effect, we tried other video effects like the FRACTALIZER and MULTIL8R. We tried to find an effect that would blur the lines between the different news videos without appearing to have technical difficulties. This is one of the reasons why we decided against combining two effects as we had initially planned.
As the MIXFADR would play both crossfading videos simultaneously, we had to set the volume to 0 for the videos. We created an audio playlist object to play the video audio instead.

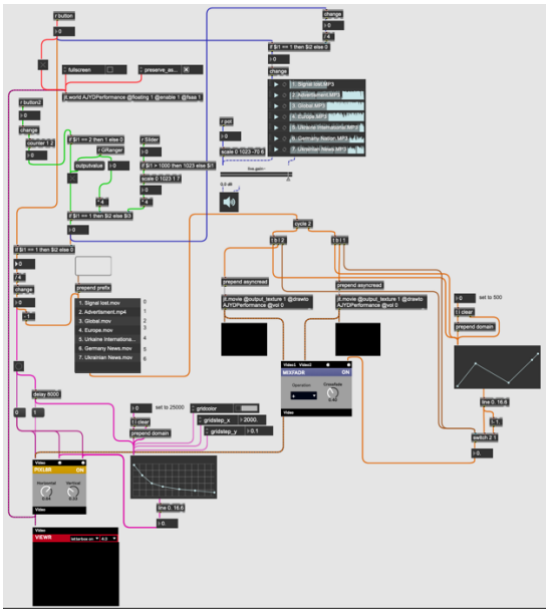

Figure 19 – The MAX Patch

Five sensors control all of the objects described above.
When pressed, the LED button sends 1s to the world object, the audio playlist, the video mixer and the video effect, enabling them when pressed and stopping them when pressed a second time.
The pot controls the volume of the audio playlist.
The secondary button uses counter and scale objects, if statements, and an outputvalue message to switch between the Slider and Ultrasonic Ranger. Depending on whether the counter is at 1 or 2, either the Ultrasonic Ranger or the Slider will send a signal to the video mixer and audio playlist.
Using scale, multiplication, and division objects, the Slider and Ultrasonic Ranger send a signal selecting a video from the video mixer playlist and an audio track from the audio playlist.
The video effect is controlled by a toggle activated by the change of video. Using a delay object and two messages, the effect is activated and deactivated. Every time the video mixer transitions to a new video, the effect is reset to 0. After eight seconds, it is turned on, and the horizontal and vertical pixelation progresses from 1 to 0.55 following a customised function.

5. PERFORMANCE PLAN

For the performance, each of us will have a 3D-printed remote with two to three sensors connected to it. Each of us will have one remote and take three to four steps away from the computer and Arduino Kit. Yelyzaveta will go to the left of the computer, and I will go to the right.
My remote includes the LED button, secondary button and the Ultrasonic Ranger sensor. Before starting the performance with the LED button, I will count down from three with my fingers for Yelyzaveta to see as her movement will start the performance for the viewer. She will pretend to turn on the screen (TV). We planned when to cut to the following video to ensure a seamless transition. When the endpoint of the video approaches, I will press the secondary button while pretending to use my remote and taking a step toward the screen. The video will fade to the next one. We will wait until the end of the video when I press the button again, and Yelyzaveta pretends to use her remote and take a step towards the screen. This will repeat until the last video.

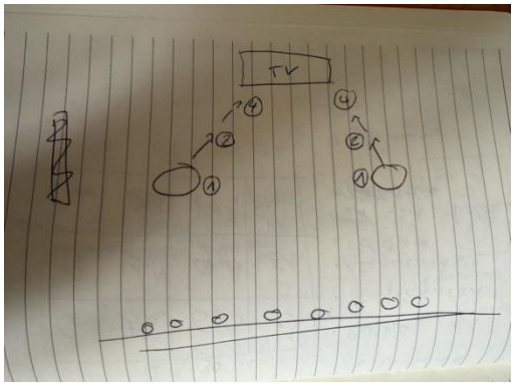

Figure 20 – First sketch of our setup idea

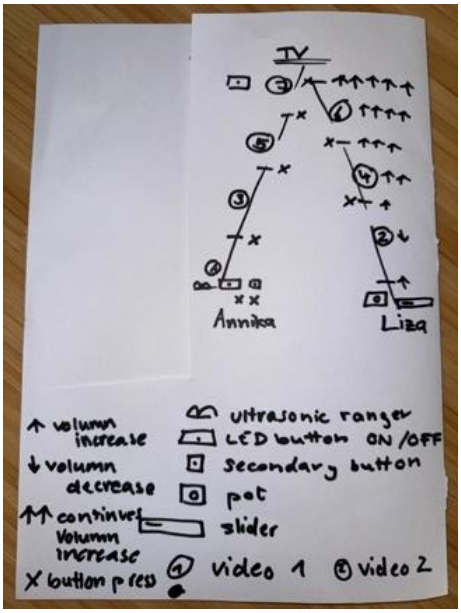

Figure 20 – Second sketch of our setup idea

The videos are designed to have regional and personal aspects related to the person using the remote, as demonstrated by the first two videos. When Yelyzaveta uses her remote, it triggers a Ukrainian news video. When the signal switches to my remote, the Ukrainian news video transitions to German news videos.
Technically, both remotes can control all the videos in the video mixer, allowing us to improvise during the performance and go in each direction of the video mixer.
We chose to control one video after another and go in chronological order to underline our message that the closer you get to the screen, the more news broadcasts are being played, the louder the videos get, and the more overwhelming the performance becomes. As well as to keep within our related video collages not crossover.
Yelyzaveta will control the audio with a potentiometer during the performance, increasing and decreasing it, as discussed before. The audio control is most important for the last three videos, as it is supposed to make the viewer as uncomfortable and overwhelmed as possible.
When the last video switches to black, I will press the LED button, and the performance will end.

6. REFLECTION ON THE SYSTEM

Reflecting on the system we built, I'm impressed with what we achieved. Our project is innovative and interactive and makes a statement about the increasing overflow of news and information. I am incredibly proud of our customised fader and pixel effect and the way we can switch between which sensor controls the video mixer. We demonstrated problem-solving and improvisation skills by overcoming technical and conceptual challenges. Moreover, we expanded our skill set by learning skills like 3D printing and electronics. Additionally, our knowledge of Arduino and MAX MSP increased.

Furthermore, the fact that our system is interdisciplinary and integrates technology, art, and critical analysis highlights the depth of our exploration of our ideas.

We successfully created a fully functional system and were ready to perform it on the performance date. Watch the Screen capture of the MAX Patch here.

7. REFLECTION ON THE PERFORMANCE

Overall, our performance went well. The sensors measured precisely, with no lagging signal or wrong video transmission. The audio and video transmission functioned perfectly, and the video effect started at the appropriate moment.

The audio section of the performance could have been improved. I would have liked a more noticeable variation in volume. The audio control significantly differed from previous practice runs because the computer was connected to a speaker instead of only the computer speaker.

Additionally, I wish we had used more videos, making the switch between people controlling the video mixer and the overwhelmingness of the news broadcastings more evident. Having one more collage of 16 to 24 videos would have been beneficial in conveying our message. Watch a video of our Performance here.

8. FUTURE DEVELOPMENTS

If we could further develop this project, I would like to double the number of videos used in the video mixer. Instead of having the video mixer switch from a 1-video collage to a 2-video collage to a 4-video collage, etc, I would have it switch from a 1-video collage that shows a Ukrainian news broadcasting to a 1-video collage showing a German news broadcasting to a 2-video collage of Ukrainian news broadcastings to a 2-video collage of German news broadcastings, etc.

This would highlight the local connections between the person holding the remote and controlling the video mixer even more.

Furthermore, I would look for a sensor different from the Ultrasonic Ranger that measures short distances more precisely than the Ranger. The Slider works more precisely but doesn't work as well with the message we are trying to convey. I would spend more time looking into different sensors, looking for one that measures short distances precisely but also conveys our message clearly.

Lastly, I would redesign the remote, creating slots for the pot and the two buttons within the remote.

9. REFERENCES

[1] Postman, N., and Postman, A. Amusing Ourselves to Death: Public Discourse in the Age of Show Business. *Penguin Books., 20th Anniversary edition, pp. 166* (Dec. 2005).

[2] Postman, N., and Postman, A. Amusing Ourselves to Death: Public Discourse in the Age of Show Business. *Penguin Books., 20th Anniversary edition, pp. 109* (Dec. 2005).

[3] Postman, N., and Postman, A. Amusing Ourselves to Death: Public Discourse in the Age of Show Business. *Penguin Books., 20th Anniversary edition, pp. 112* (Dec. 2005).

[4] Postman, N., and Postman, A. Amusing Ourselves to Death: Public Discourse in the Age of Show Business. *Penguin Books., 20th Anniversary edition, pp. 108* (Dec. 2005).

*The page numbers are taken from the eBook version of the 2005 20th Anniversary Edition.