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Advertisement on Waterfall Streaming

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Abstract

This paper presents a new way of advertisement that is appealing to a large number of people. This is an Advertisement on waterfall streaming. The system can be adjustable to different sizes of waterfall screen and difference pattern according to user requirement. The users can design the patterns for displaying and pre-programming them into the system by converting pictures or creating word(s) or sentence(s). The system has two parts. First, the PC program which is used to interface with a user to retrieve pattern and transition command. The other part is the controller which is used to store pattern and control solenoid valve on each line to create a bit map stream of water. This system can display a pattern of alphabet or picture one at a time.

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1. Introduction

Nowadays, there are many kinds of media for advertisement such as radio stations, televisions and printing media. One of the famous methods that is able to draw attention from people is **Advertisement on Waterfall Streaming**. This advertisement is an amazing idea which the producer designed to be able to function on and off the water valve and create pictures or messages on the falling water. Whoever has a chance to walk pass this advertisement will stop to take a look and be stunt for this grand idea. Unfortunately, this kind of advertisement is not always available in Thailand because of many reasons; for example, production cost, and no one has tried to invent it in the country.

The old system focuses on the huge fixed size waterfall for displaying. Control of the shows only depends on the owner of technology or the advertiser. The user cannot change the pattern or size of the shown images. Hence, this advertisement is usually shown in the short-term shows or exhibitions.

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Consequently, we had an idea to design and develop the adjustable advertisement on waterfall streaming system for supporting various user requirements in patterns and sizes of show. So, our users can adapt for using in a lot of ways.

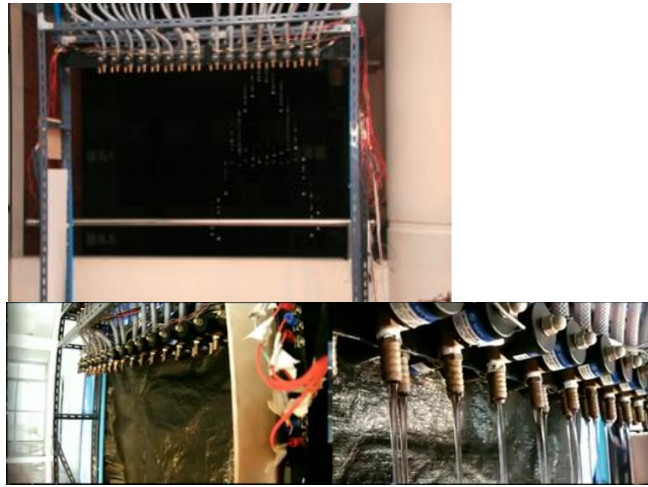


Fig.1. Advertisement on waterfall streaming in working an A alphabet

2. System design

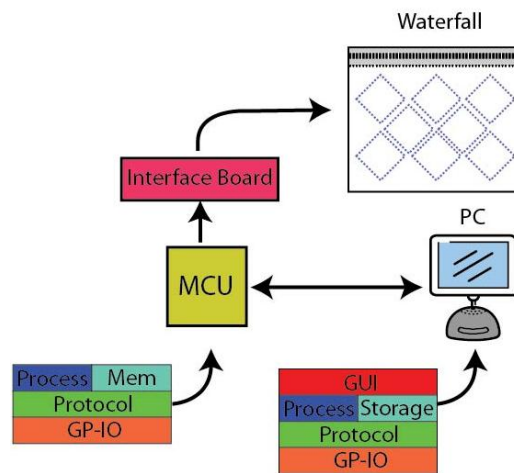


Fig. 2. Overall system

This project consists of 3 parts of studying designing and developing. These are User Interface, Waterfall Streaming Controller and Protocol.

1) User Interface

This part is designed for easy usage, all commands can be controlled from this window such as playing/stopping the waterfall or creating new patterns. Moreover, the program is designed for supporting the various sizes of waterfall.

2) Waterfall Streaming Control Panel

This part can be controlled by a computer or can work by itself. The control panel is split into several sub-boards. Each board can work by itself or can work together with others. The control panel will receive the pattern and save it in memory then play this pattern on the waterfall.

3) Protocol

The pattern in this project is sent by serial communication or RS-232. It uses stop-and-wait protocol and uses Bus topology. Importantly, we designed our data packet in our system grandly to make it the most suitable and give the best performance.

3. User Interface

This system was designed for supporting the pattern that is created in accordance to various needs of users. Users can simulate this pattern on the program before sending it to the control panel. If users do not like to save it on the control panel, we have function that will save this pattern on the computer, and also, we have a function program that can open it into a reserve program for future use. This program can create patterns from texts that user would like to show. Moreover, it can control the waterfall; starting and stopping it.

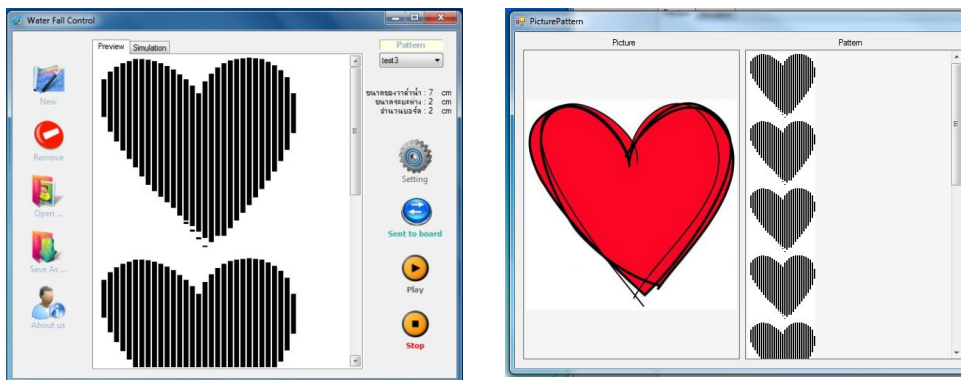


Fig. 3. The creating pattern to show on streaming waterfall

4. Waterfall Streaming Controller

Waterfall Streaming Controller can be commanded from a computer or can work by itself. This controller is split into several sub-boards. Each board has to control 16 valves. All boards can play by themselves individually or together.

Firstly, Waterfall Streaming Controller receives the pattern, then this data will be used for opening/closing the solenoid valves. The valve flashes light at most 25 times per second. Each pattern plays for 40 seconds long.

Waterfall Streaming Controller component

- 1) Waterfall controller, ET-Base AVR
- 2) Waterfall, brass solenoid valves ¼ inch 24VDC

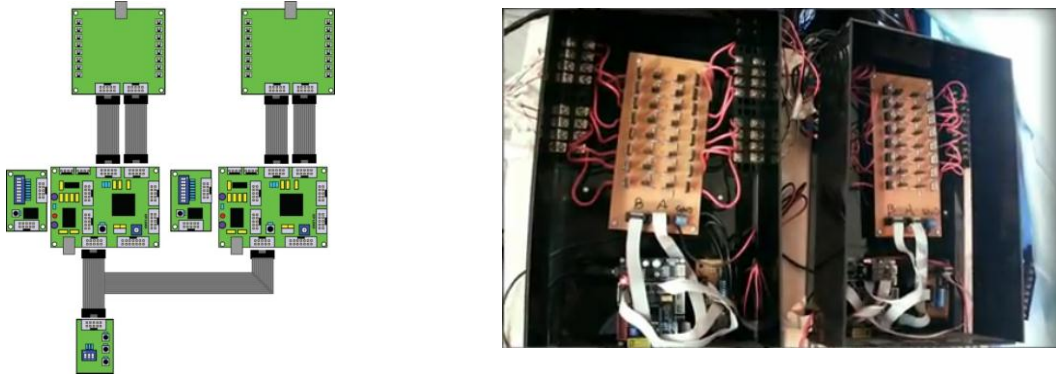


Fig. 4. Waterfall Streaming Controller

5. Protocol

Due to several commands, we created our own protocol for communication between the software and the Waterfall Streaming Controller. The requirement of this part is

- 1) to support controlling numerous boards or specific board.
- 2) to transmit command for controlling the controller boards.
- 3) to support identification of all pattern or specific pattern.
- 4) to be a reliable transmission protocol.

5.1 Type of protocol and topology

Our project use Stop-and-Wait ARQ that transmitted by serial communication (RS-232) and Bus topology for connection between computer and all boards.

5.2 Data packet

Designed data packet consists of 5 bytes of header and 1270 bytes of data. 5 bytes of data are

- | | | |
|----------------------|---|---|
| 1) ID (8 bits) | : | To identify number of board, support maximum 255 boards (ID=0xFF is broadcast ID) |
| 2) ACK bit | : | To control flow of data |
| 3) SYN bit | : | For handshaking |
| 4) FIN bit | : | To identify the last packet |
| 5) Commands (4 bit) | : | To identify command |
| 6) Patterns (4 bits) | : | To identify pattern to use, support maximum 15 patterns (0x0F is all patterns) |
| 7) Times (4 bits) | : | To identify time(s) for display the pattern |
| 8) Length (8 bits) | : | To identify size of packet, header and data (1 block = 5 bytes) |
| 9) Checksum (8 bits) | : | To verify the packet. |

6. Conclusion

We designed an Advertisement on Waterfall Streaming system that has various usability so that users can use it in a flexible manner. This system is separated into 3 parts namely the User Interface, Waterfall Streaming Control Panel and Protocol (User view can be 2 parts which are User Interface and Waterfall Streaming Control

Panel). Thus, our system can be adapted for many usages such as decorations for houses and gardens, and for shows in huge exhibition or advertisement fairs.

Acknowledgements

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