

Design and Build Outdoor Running Text Construction

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ABSTRACT

Higher education has an important role in shaping the future of the young generation and advancing society. The campus is a center of higher education that is a forum for the development of science, character building, and the distribution of information to various parties. Campus identity is an integral part of the image and reputation of an educational institution. This identity includes core values, visions, missions, and achievements that must be conveyed to the general public. In the increasingly advanced digital era, information media has an increasingly significant role in conveying campus messages and identities. One of the effective mediums in visual communication is running text, which is also known as "walking text." Running text allows for the delivery of messages that are dynamic, attention-grabbing, and easy for the audience to remember. Therefore, the use of running text as an information medium for the AKATEK Bogor campus is a relevant choice in facing the demands of modern communication.

Keywords: *Running Text, Information Media, AKATEK.*

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Introduction

The AKATEK Bogor Campus, as a rapidly growing educational institution, is committed to providing high-quality education and empowering students in various fields of science. In an effort to further highlight the campus identity and convey important messages to the campus community and the wider community, there needs to be an effective and dynamic means of visual communication.

This research will focus on the main problem, namely how to design hardware that is efficient and can handle the display of text running well as an information medium and is resistant to various weather. This involves the selection of hardware components such as screens, control modules, resources, and physical design to support the display of running text in accordance with expectations.

Running Text is also known as Moving Sign (Deprintz, 2014), "walking text" or "walking screen". In its development, Display Running text is now present not only to display a series of running text, but also to display images or logos. This technology is used for visual and information communication purposes, and is often encountered in a variety of contexts, including on information boards on highways, television stations, shopping malls, and educational institutions, including college campuses.

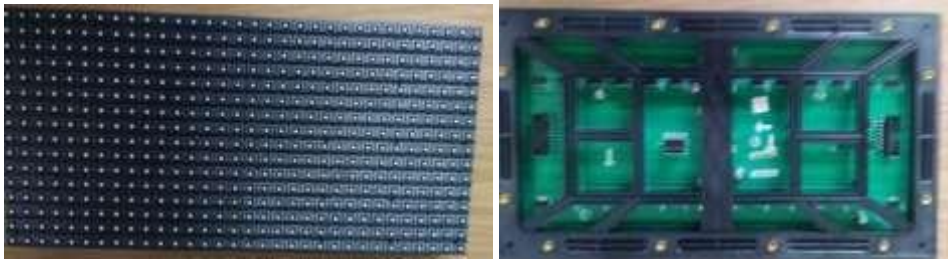


Figure 1. Module LED Panel P10

The P10 LED panel module is one type of running text panel that has a pixel density of 10mm. Its length and width dimensions are 32cm x 16cm. The input voltage is at 5V DC And its power consumption is 20 Watts per its module.

Thee module or LED matrix display block is used for the creation of running text. Some modules are assembled to become a running text panel according to size/needs. Effective as a digital information medium that can convey several messages or information at once.

This component (P10 panel LED module) is as the main screen that will display the text running. The outdoor P10 RGB SMD LED running text module was chosen to provide a clear display and is resistant to external weather.

Research Method

Running text usually consists of several lines of text, but they are separated by vertical lines or other separators. Running text can move horizontally, i.e. from left to right, or vertically, i.e. from top to bottom. The speed of the running text movement can also be adjusted to suit needs (Estefina S.S, 2023), This allows the delivery of messages or information in a way that attracts attention and is easy to remember by anyone who sees it.

This research uses a research and development approach that aims to design, develop, and test the running text system as an information medium and also the identity of the AKATEK Bogor Campus. A research and development (R&D) approach is a research method that focuses on developing practical solutions to specific problems or needs. This approach allows us to produce innovative technology solutions that meet the needs of the campus and the general public.

Result and Discussion

The following are the data from the internal and external durability testing of the system:

1. Testing During Rainy Weather:
 - a. The system operates well during the rainy period which lasts within 1 week of testing.
 - b. The message display remains clear and uninterrupted by light to moderate rain.
2. Testing During Hot Weather:
 - a. The system remains in good operation during hot weather periods with temperatures reaching 38°C.
 - b. No degradation in message display quality occurs during hot weather.

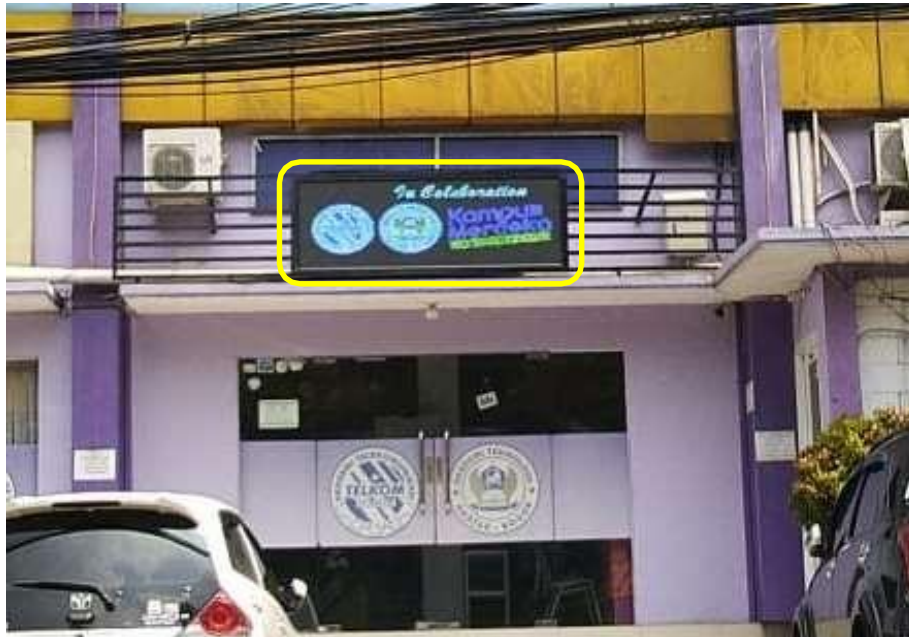


Figure 2. Results of the Implementation of the Outdoor Running Text Unit

Table 1. Internal and External Durability Testing under actual weather conditions

No.	Day	Date	Hot	Rain	Condition
1	Sunday	12-11-2023	Yes	Yes	Unit working normally
2	Monday	13-11-2023	Yes	Yes	Unit working normally
3	Tuesday	14-11-2023	Yes	Yes	Unit working normally
4	Wednesday	15-11-2023	Yes	Yes	Unit working normally
5	Thursday	16-11-2023			
6	Friday	17-11-2023			
7	Saturday	18-11-2023			

Resilience to Network Disruptions:

1. The system has been tested by turning off and restarting the AC power.
2. The test results show that the system can quickly display Posts running back on the screen.
 - a. Power Consumption Testing

The power consumption test of the running text system is carried out to measure how much power is needed by the system. The following is a table of power consumption measurement results:

Table 2. Power Consumption Test Table

No	Testing Conditions	Brightness Screen Display	Measurement Voltage (Volts)	Measurement Current (Ampere)	Consumption Power (Watts)
1	Message Display Active	25%	226	0.8	180
2	Message Display Active	50%	226	1	226
3	Message Display Active	75%	226	1.4	316
4	Message Display Active	100%	226	2.2	497

1.1. Testing Against Internal and External Interference

Internal and external durability testing under actual weather conditions is an important step to measure the extent to which a running text system can operate in changing environmental situations. The test results show that the system has a good level of resistance to rainy and hot weather.

During extreme weather testing, the quality of the message display was well maintained and there were no significant issues. This indicates that this system can function consistently even in harsh environmental conditions.

These results support the reliability of the running text system in a wide range of weather situations and confirm that it is suitable for use in a variety of environments. This evaluation provides confidence that the system will continue to operate according to user expectations despite exposure to changing weather conditions.

1.2. Power Consumption Test Results

Based on the results of power consumption measurements, the running text system has acceptable power performance. In various conditions, the brightness level in displaying messages has different power consumption and is relatively low, but it can increase according to the complexity of the desired display. This allows the user to set the efficiency in power usage when the system is active.

Conclusion

1. Achievement of Project Objectives

This project has successfully designed and implemented a WiFi-based running text system with the P10 module that can present messages with interesting animation effects.

2. Internal and External Resilience

- a. Resistance to external network interference has also been tested and the results are positive.
- b. Testing in actual weather shows resistance in rainy and hot conditions.
- c. Controlled Power ConsumptionThe system has controllable power consumption. Depending on the level of brightness applied, the power consumption when displaying a message remains within an acceptable range.
- d. Message Display Quality

The quality of the message display on the P10 module has met user expectations. Messages are displayed clearly, smooth animation effects, and color setting capabilities.

e. Friendly User Interface

The Android app's user interface is well-designed, allowing users to easily send messages and set the display of messages.

f. Development Potential

The system has the potential for further development with the addition of additional features as needed and integration with artificial intelligence technology. This system provides a reliable and efficient solution for users who need an attractive and reliable message display in various situations.

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