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Notification System of Picking-up and Dropping-off Students Via LINE Notify

Introduction

A tragic incident occurred when a preschooler was left unattended in a school bus and died from suffocation. The child, unable to help themselves, was overlooked by the driver or teacher after the other children had disembarked.

For this reason, researchers have developed Notification System of Picking-up and Dropping-off Students Via LINE Notify. This efficient and user-friendly system allows for the tracking of students on school buses or vans using barcode scanning of student IDs. Parents receive notifications whenever their children board or disembark the vehicle.

Objectives

1. To develop Notification System of Picking-up and Dropping-off Students Via LINE Notify.
2. To test the efficiency Notification System of Picking-up and Dropping-off Students Via LINE Notify.
3. To evaluate the user satisfaction with Notification System of Picking-up and Dropping-off Students Via LINE Notify.

Materials

1. Raspberry Pi 3B
2. Embedded Barcode Scanning Module
3. Barcode
4. Siren
5. Piezo Buzzer
6. LINE Notify

Methods

Here are the steps Notification System of Picking-up and Dropping-off Students Via LINE Notify.

1. Analyze information about Notification System of Picking-up and Dropping-off Students Via LINE Notify.
2. Design our workpiece that consisted of two main components: software and hardware.

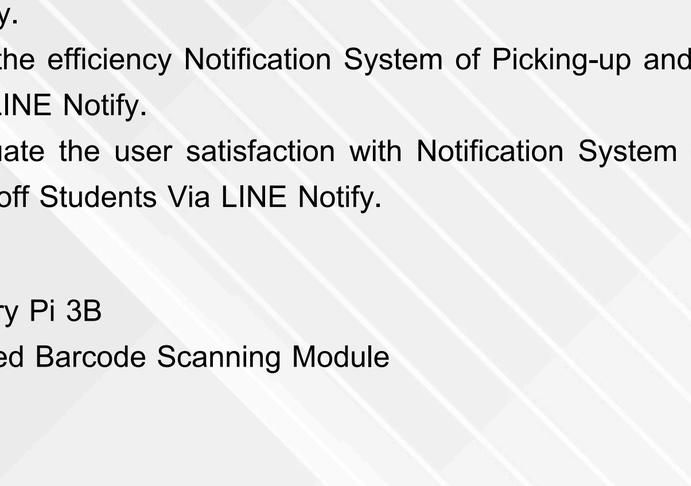

Figure 1: Design Notification System of Picking-up and Dropping-off Students Via LINE Notify

3. Test the efficiency of the innovation by conducting five trials Notification System of Picking-up and Dropping-off Students Via LINE Notify.

$$\text{Precision} \quad \frac{\text{Number of Barcode Scanning / Notification Correctly}}{\text{Number of Barcode Scanning / The Total of Notification Correctly}}$$

4. The system will be piloted with a selected group of users, and a user satisfaction questionnaire will be conducted that divided into two parts: structural design and system functionality.

Results

Table 1: Accuracy of Barcode Scanning and Notifications

student	Time										Error
	1 Times		2 Times		3 Times		4 Times		5 Times		
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2	
1	/	x	/	/	/	/	/	/	/	/	Not Notification via LINE Notify
2	/	/	/	/	/	/	/	/	/	/	
3	/	/	/	/	/	/	/	/	/	/	
4	/	/	/	x	/	/	/	/	/	/	Not Notification via LINE Notify
5	/	/	/	/	/	x	/	x	/	/	Not Notification via LINE Notify
6	/	x	/	x	/	/	/	/	/	/	Not Notification via LINE Notify
7	/	/	/	/	/	/	/	/	/	/	
8	/	/	/	/	/	/	/	/	/	/	
9	x	/	x	/	/	x	/	/	/	/	Not Notification via LINE Notify
10	/	x	/	/	/	/	/	/	/	/	Not Notification via LINE Notify
Accuracy (Percentage)	80.00		85.00		90.00		95.00		100.00		
Total Average										90.00	

This test was conducted to measure the accuracy of barcode scanning and LINE Notify. The average accuracy rate was 90.

2. A satisfaction survey was conducted among 10 students and parents who used the school bus service. The average satisfaction score was 4.38 as high level.

Discussion and Conclusion

An evaluation Notification System of Picking-up and Dropping-off Students Via LINE Notify. revealed an average accuracy rate of 90 across barcode scanning, notification, and system operation. The system's performance was found to be contingent upon a stable internet connection, with occasional delays or failed Notification System of Picking-up and Dropping-off Students Via LINE Notify. A satisfaction survey indicated a high level of contentment among parents and students.

The user designed Notification System of Picking-up and Dropping-off Students Via LINE Notify. effectively addresses safety concerns for students and provides peace of mind for parents and teachers. Our group compared with other notification devices, this system offered the system that is easy to set up and use, and it sends alerts when something goes wrong. For example, a student is trapped in a car. The further enhance system, it is recommended to install GPS devices on school buses for real-time tracking, and to encrypt students' and parents' personal data to ensure privacy.

References

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