

Student Calling Machine When After School by Whatsapp Text Message

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Abstract: Crowds still have the potential to occur during the implementation of 100 percent face-to-face learning. School residents, especially students, still find it difficult to keep their distance from each other and that happens especially when it's time to go home from school. To overcome this condition, schools are moving quickly to find solutions. For example, the education unit made an alternative to prevent crowds. Namely providing a special waiting area for students, chairs lined up in the school hallway. The children sat while waiting for their parents to come pick them up. As soon as the parents arrive, the student is called over the loudspeaker, and so on. However, this method is not effective enough to reduce the crowd. Because at the time of calling the students who were picked up, the officer (teacher picket) was overwhelmed to recognize the parents or guardians of the students who were picking up the call by loudspeaker, due to the large number of students there could also be a change in the person who picked up the previous day.

Keywords: Text to Speech application, whatsapp communication, mp3 amplifier, esp8266.

1. Introduction

On November 20, 2021, the Ministry of Education and Culture affirmed policies related to face-to-face learning as stated in the Joint Decree of the Minister of Education and Culture, Minister of Religion, Minister of Health, and Minister of Home Affairs. Where the face-to-face learning process for the even semester of the 2021/2021 academic year is allowed with the permission of the local government as the party who best understands the needs and capacities of each area, besides that it is also supported with the approval of the student's parents (kabar24.bisnis.com). After that, on March 30, 2021, the Minister of Education and Culture decided through a Joint Decree that face-to-face learning in schools would be carried out starting in July 2021. The school was required to provide two options including face-to-face learning and distance learning, to form several study groups (banjarmasin.tribunnews.com). The implementation of face-to-face learning does not mean that the Covid-19 virus is over. All elements involved must maintain existing health protocols as an effort to reduce the number of Covid-19 during the face-to-face learning process. In addition, it is also necessary to have the contribution of technology to support this learning program.

Crowds still have the potential to occur during 100 percent face-to-face learning. School residents, especially students, still find it difficult to keep their distance from each other and that happens especially when it's time to go home from school. To overcome this condition, schools are moving quickly to find solutions. For example, the education unit made an alternative to prevent crowds. Namely providing a special waiting area for students, chairs lined up in the school hallway. The children sat while waiting for their parents to come pick them up. As soon as the parents arrive, the student is called over the loudspeaker, and so on. However, this method is not effective enough to reduce the crowd. Because at the time of calling the students who were picked up, the officers were overwhelmed to recognize the parents or guardians of the students who were picking up for the call with loudspeakers, due to the large number of students as well as the guardians of students who could change from those who picked up the previous day.

Therefore, equipment is needed by utilizing technology that can support the implementation of face-to-face learning in several parts related to learning activities, one of which is a student calling queue machine when returning from school by sending student names to the server via Whatsapp or SMS carried out by student picker, the server will receive the student's name by checking the sender's number that has been recorded previously, if the sender's number and the name received match, then the machine will call the student by loudspeaker by the system.

2. Methods

This system is built on several devices (Hardware) and application programs (Software) where the devices and programs work in an integrated manner.

Short Message Service (SMS) is an alternative if the internet network is not strong or cannot be reached somewhere (school location). Whatsapps/SMS is one of the most widely used media today. Besides being cheap, the process is also fast and direct to the destination, but so far Whatsapps/SMS has only been used to send and receive messages between cell phone owners. Whatsapps/SMS sent or received actually has its own format to be translated by a mobile phone. There are actually two formats or modes used to send and receive Whatsapps/SMS, namely text mode and PDU (Protocol Data Unit) mode.

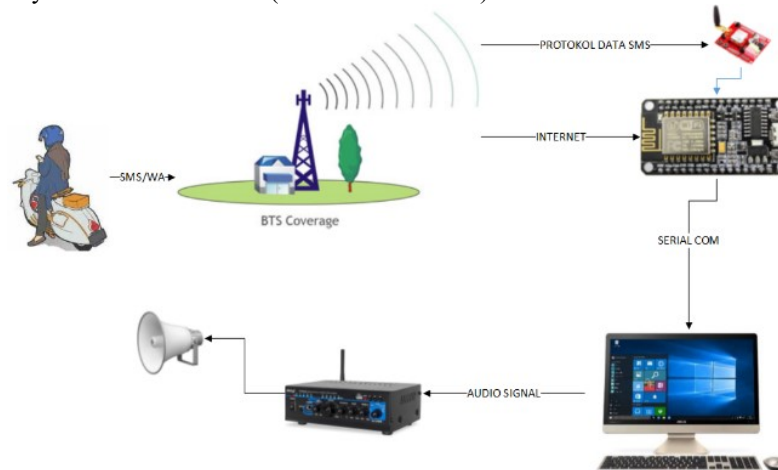


Figure 1. Hardware block diagram.

Text received on the server computer will be converted into speech (voice) which is then amplified by an amplifier to be issued to Toa speaker as a loudspeaker, which is a call from a waiting parent (guardian to pick up).

There are 2 actors in this student calling queue machine activity including admin and parents (guardians). Admins have their own access rights to login first before entering the system and admins can turn the server on and off.

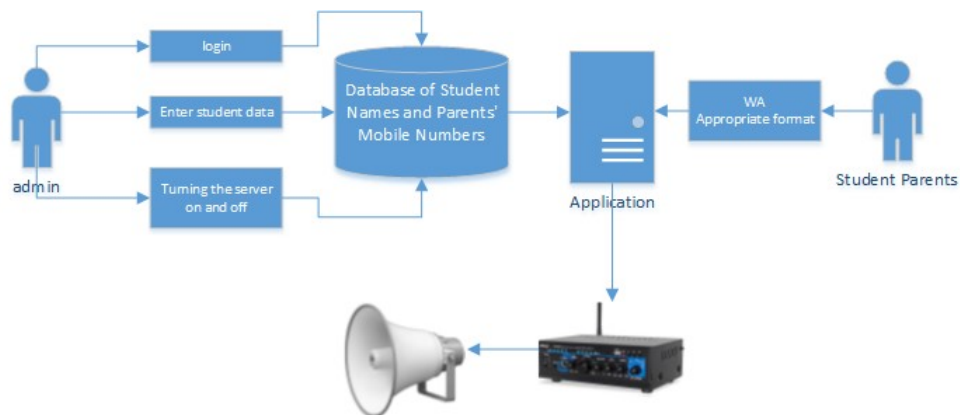


Figure 2. System block diagram.

The system then sends a code to the application to search for data in the database then the application sends a message via whatsapp/SMS gateway to parents and students' parents receive a whatsapp/SMS reply according to the format specified by the admin.

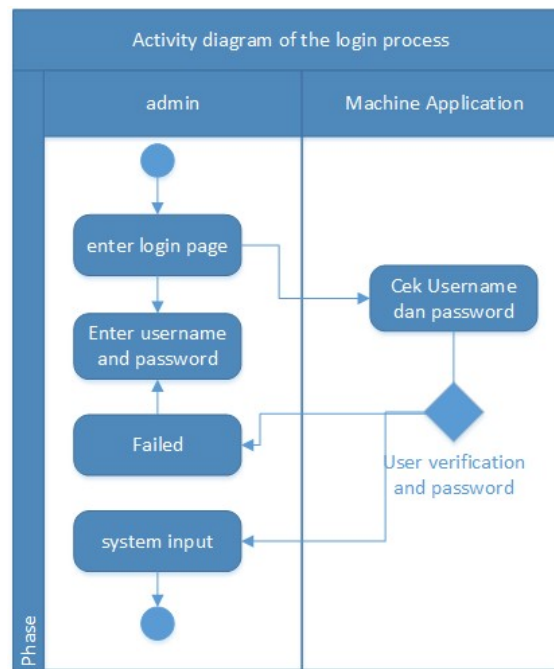


Figure 3. Activity diagram of the login process.

The activity diagram for the admin login process can be seen in Figure 3 where the admin must login first before entering the system. Admins who can log in are admins who are already registered in the system. If the admin is not registered, it means that you cannot enter the system. In logging in, an error occurs, it will return to the beginning when the admin is told to log back in. After the admin can login (true username and password) it will enter the system and the login process is complete.

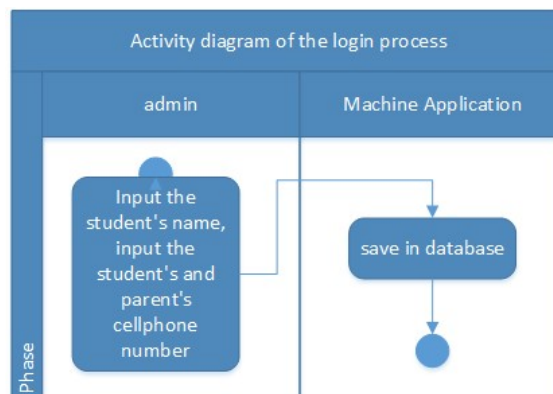


Figure 4. Activity diagram of input the phone number .

In Figure 5 it can be explained for the activity diagram when the admin inputs to input or update. After inputting the name and number of the student's parents, the data will be stored in the database.

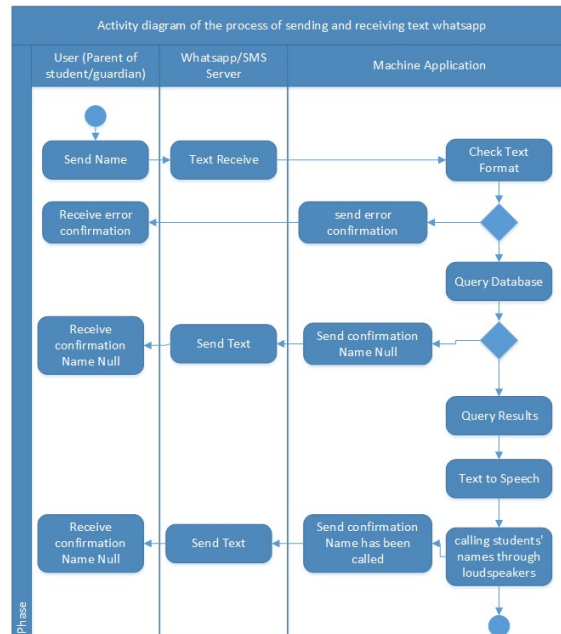


Figure 5: Activity diagram of the process of sending and receiving text whatsapp

In Figure 5 it can be explained for an activity diagram regarding the process when parents (student guardians) send and receive WhatsApp/SMS. parents send messages in the form of student names, student classes with a predetermined format. whatsapp/SMS gateway receives whatsapp/SMS then checks whether the whatsapp/SMS format is right or wrong. If it is wrong, the whatsapp/SMS gateway sends a notification to the parents that the format of the message sent is wrong. If true, whatsapp/SMS will be queried with the database on the call queue engine application. The results of the query are then sent to the parents of the students in a predetermined format. parents of students receive WhatsApp/SMS in the form of confirmation that the student has been called. Whatsapp/SMS gateway receives then checks the database whether the requested name is calling. If correct, Whatsapp/SMS will be queried with the database. The query results are then converted into speech (audio), then sent to an amplifier (speaker) with a predetermined format for a call that the parents (guardians who pick up) are waiting to pick up their children.

3. Result and Discussion

3.1 Sending whatsapp text

In this research, sending WhatsApp text using the Twilio Application Programming Interface (API) with the nodeMcu esp8266 board. Testing success as shown in table 1.

Table 1. Sending whatsapp text test

Trial to	Text Whatsapp	Voice Out	Status
1	"Azhizul"	Azhizul	successful
2	"Azhizul"	Azhizul	Successful
3	"Azhizul"	Azhizul	Successful
4	"Hari Putra"	Hari Putra	Successful
5	"Hari Putra"	Hari Putra	Successful
6	"Hari Putra"	Hari Putra	Successful
7	"Zulpan Efendi"	Zulpan Efendi	Successful
8	"Zulpan Efendi"	Zulpan Efendi	Successful
9	"Zulpan Efendi"	Zulpan Efendi	successful

3.2 Timing receive whatsapp text

The following table is a test of the time of receiving WhatsApp text sent from the user (parents of students).

Table 2. Timing receive whatsapp text test

Trial to	Send Text Whatsapp	Status
1	"Azhizul"	0,58
2	"Azhizul"	0,55
3	"Azhizul"	0,57
4	"Hari Putra"	0,59
5	"Hari Putra"	1,28
6	"Hari Putra"	0,53
7	"Zulpan Efendi"	1,05
8	"Zulpan Efendi"	0,58
9	"Zulpan Efendi"	1,02
	Average	1,15

4. Conclusions

In this research, using an arduino board esp8266 which is connected to a 4G internet network with ideal conditions, so that all test results are 100% successful.

The student calling machine uses an algorithm when there is a user requesting it to be executed immediately (student calling), so that there are users (student parents) who request at the same time, so that some are not executed.

It is better to add a request collection algorithm within a certain time and then call students in accordance with the order to avoid requests being ignored.

Reference

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