

Integration telegram bot on E-Complaint Applications in college

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Abstract. Internet of Things (IoT) has influenced human life where IoT internet connectivity extending from human-to-humans to human-to-machine or machine-to-machine. With this research field, it will be created a technology and concepts that allow humans to communicate with machines for a specific purpose. This research tries to integrate between application service of the telegram sender with application of e-complaint at a college. With this research users do not need to visit the Url of the E-compliant Application but simply by submitting a complaint via Telegram and then will be forwarded to the E-complaint Application. From the test results, e-complaint integration with Telegram Bot has been run in accordance with the design. Telegram Bot is made able to provide convenience to the user in this academician to submit a complaint, besides the telegram bot provides the user interaction with the usual interface used by people everyday on their smartphones.

1. Introduction

Quality improvement of quality higher education that is consistent and sustainable aims to obtain satisfaction and sustainable development in college. The complaints management system is a tool commonly used to improve organizational performance [1], noted the completion of and respond to customer complaints as well as make it easier for other feedback [2]. The complaints handling process can result in a probability of the complainant satisfied and dissatisfied [3]. Complaints can also be classified by related work unit [4], so that the complaining work unit can immediately make improvements or improve its performance.

The submission of complaints by customers can be done quickly using a web-based application or we call it e-Complaint, this application can be classified data based on student complaints work unit purposes using a Centroid Based Classifier algorithm [4]. Presence of Internet Of Things (IoT) increasingly facilitates the work of man. IoT not only People-To-Machine communication, but also Machine-To-Machine (M2M) [5][6]. IoT aims to allow all connected anytime, anywhere, with anything and anyone using the internet network [7]. Additionally IoT allows integration between Telegram smartphone messenger with an Arduino platform using Telegram Bot [8].

In this paper we propose the integration of web-based complaint applications with Telegram, this integration utilizes the Telegram Bot API and we chose the Long-Polling [9] method in Bot making, this method is Telegram's default method. The main contribution of this paper is to demonstrate the potential of Telegram applications implemented on IoT via the Bot telegram API on different platforms of communication between web platform and Telegram. Applications that are built are

expected to provide an easy interface, simple and commonly used by people everyday with their smartphones.

2. Experimental Method

The integration between e-Complaint application with Telegram Bot is done by using Telegram Bot API. The first step to use the Telegram API begins with making Telegram Bot by registering to @botfather (<https://telegram.me/BotFather>). in @botfather there are steps that must be passed such as creating a Bot name, Bot username and command with command / newbot. Once the Bot is made it will get a Bot token that will be used for Telegram Bot communication with e-Complaint application. In Figure 1 is an example of a token generated at the Bot-making stage.

```
HTTP API:  
414625573:AAFZ0WH1URT92V  
Hnizaz7aWtIp3_ . . )
```

Figure 1. Token Bot

Token Bot shown Figure 1, then applied to the program created, we named the program UmsidaBot placed on the web server and run periodically per second. UmsidaBot acts as an intermediary between Telegram and the e-Complaint application. Data obtained by UmsidaBot from Telegram API bot of JSON, to get JSON update from Telegram API bot, UmsidaBot should check its update with getUpdates command. Figure 2 is a function of the getUpdates command on UmsidaBot.

```
function DapatkanUpdate($offset){  
    //kirim ke Bot  
    $url = BotKirim("getUpdates")."?offset=".$offset;  
    //dapatkan hasilnya berupa JSON  
    $kirim = file_get_contents($url);  
    //kemudian decode JSON tersebut  
    $hasil = json_decode($kirim, true);  
    if($hasil["ok"]==1){  
        return $hasil["result"];  
    }else{  
        return array();  
    }  
}
```

Figure 2. Function getUpdates UmsidaBot

JSON obtained, then processed to get a message in the form of a data string, if the message received is a complaint, then this data sent to the e-Complaint application to be processed again into complaint information. But if the received message is not a complaint, then UmsidaBot will request data from e-Complaint then the data obtained is sent back to Telegram bot to display on smartphone. Figure 3 shows the architecture of UmsidaBot.

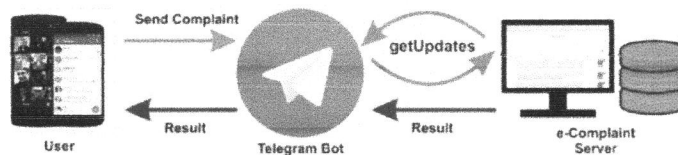


Figure 3. Architecture of UmsidaBot

3. Results and Discussion

Figure 4a is the display of the Telegram Bot, the chat session begins with the click of the start button (command / start is sent automatically) [10]. There is a menu of complaints and see the complaint statistics, if the send complaint menu is selected, Telegram Bot will give feedback in the form of grievance procedure shown 4b, we use the format / complaint {spasi} complaint. Complaints sent by customers / students through Telegram Bot are then forwarded to the e-Complaint application. The complaint data in the e-Complaint application can be seen in **Figure 5**.

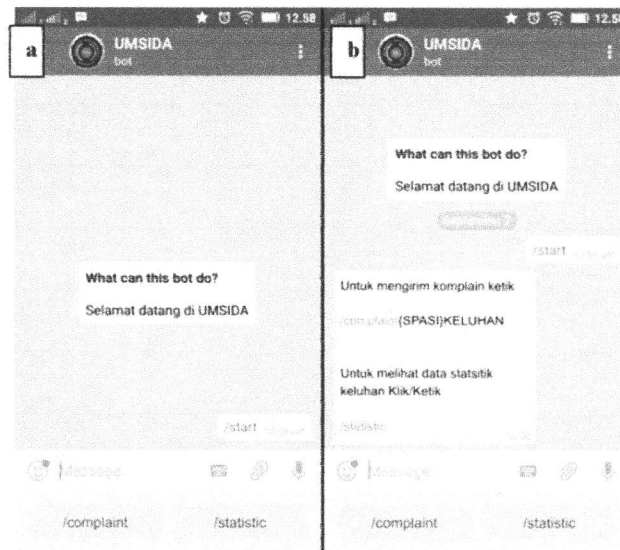


Figure 4. Initial Display of Telegram Bot, Figure 4b is the display of the message delivery procedure

Tanggal	Keluhan	Kelas	Aksi
2017 16/03	Dari pertemuan 1 sampai semester II saat ini Kipriani pertanyakan apakah terdapat keluhan. Saya bilang tidak karena saya. Beliau mulai menyakini sendiri. Ada juga keluhan dosen lain yaitu saat itu juga ada keluhan dengan beliau. Beliau tidak memperhatikan, dan mengikut mata kuliah dosen lain sampai akhir dengan terburu selesai. Bahkan ada mahasiswa yang ingin berdiskusi namun dosen dibuang kelas. Saya menghubungi beliau tapi dia tidak jawab. Setelahnya dosen lain merasa tidak. Saya menghubungi kembali karena saya sudah benar-benar tidak kuat dengan sifat sikap beliau yang sangat egois. Terima kasih Maafkan jika pertanggung dengan baik.	Fakultas	Urahan Pokok Hapus Detail

Figure 5. Complaints Data in e-Complaint application

In addition to sending a complaint, customers may also see statistics of incoming complaint data. The command used is / statistic or click the button / statistic. The display of statistical data is shown by **Figure 6**, but the Telegram Bot we built has not been able to display pie charts like the e-Complaint application shown in **Figure 7**. The process that occurs is the Telegram message received by

UmsidaBot on the server side, then the JSON data that has become the data string forwarded to the e-Complaint application to obtain complaint statistics.



Figure 6. Complaints Statistics Data

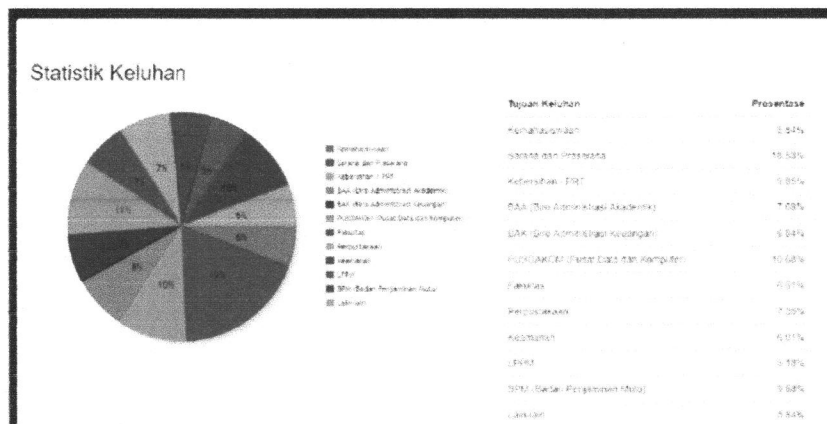


Figure 7. Complaint Statistics in the e-Complaint application

4. Conclusion

This study examines the use of the Telegram Bot API to integrate two different application platforms. In the experiment, Telegram Bot API integrates e-Complaint application with Telegram platform. Use of Telegram Bot API we put on a small program that we named UmsidaBot, this small program serves as an intermediary between the two different platforms. The results show that the integration is successful, complaints can be sent via Telegram application in a smartphone, the complaint is then

forwarded to the e-Complaint application that exists in the Higher Education server. From these results it can be concluded that with this integration can facilitate the delivery of complaints, using the interface that is often used by people on their smartphones. Complaints can be sent anytime and anywhere through the internet network.

5. Acknowledgements

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