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Traversify, Telegram controlled Home Automation

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Abstract: "Traversify" is a modular home automation system that utilizes the Telegram API and Arduino platform to provide users with a contemporary solution to the common struggles associated with traditional home automation systems. With Traversify, users can remotely control various devices and appliances in their homes and industries from any part of world, offering convenience, scalability, modularity to incorporate features according to user's need and security. The system's modularity enables customization and scalability to meet individual user needs, while its security features, such as the ability to send pictures for security purposes, enhance overall safety and peace of mind for users. The system's architecture, implementation, and functionalities are detailed, with a focus on evaluating its performance in terms of user experience, security, and energy efficiency. The use of Telegram API provides a reliable and secure communication channel between the user and the home automation system, eliminating the need for third-party subscriptions and extra SIM cards.

Keywords: SIM, Arduino and API

I. INTRODUCTION

"Tarversify" is a distributable desktop Windows application that utilizes Telegram API and Arduino technology tocontrol homes and industries remotely.

1. The system is designed to be modular and can incorporate different sensors, making it applicable invarious settings such as farming, industries, and local use.
2. Unlike other systems, it doesn't require any extra SIM, server, or third-party subscription, making it acost-effective solution for users.
3. A significant feature of "this system is its security system, which includes a camera that sends images tothe user for enhanced security purposes.
4. The system is secured using a password, ensuring the privacy and security of the users.
5. By allowing users to control devices and appliances remotely, system provides a convenient solutionfor managing tasks from a distance.
6. "Tarversify" is highly flexible and versatile, thanks to its use of Telegram API, making it accessible from anywhere.
7. As a distributable desktop Windows application, "Tarversify" offers a practical and customizable solution for controlling homes and industries with ease, without the need for additional hardware orsubscriptions and allowing multiple user to control it concurrently

II. RELATED WORK

Home automation systems have become increasingly popular in recent years, with many users looking for ways to remotely control and monitor their homes using mobile devices.

- Node-RED is a flow-based programming tool that allows users to create custom IoT applications by connecting nodes that represent various devices and services. It provides a web-based interface for creating and editing flowsand supports a wide range of communication protocols and devices.

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- The Telegram API provides a way to send and receive messages between users and applications. This API can beused to build custom chatbots that can interact with users and perform various actions.
- In the context of the Traversify project, we have leveraged the capabilities of security to create a custom homeautomation system that can be controlled and monitored using the Telegram API.

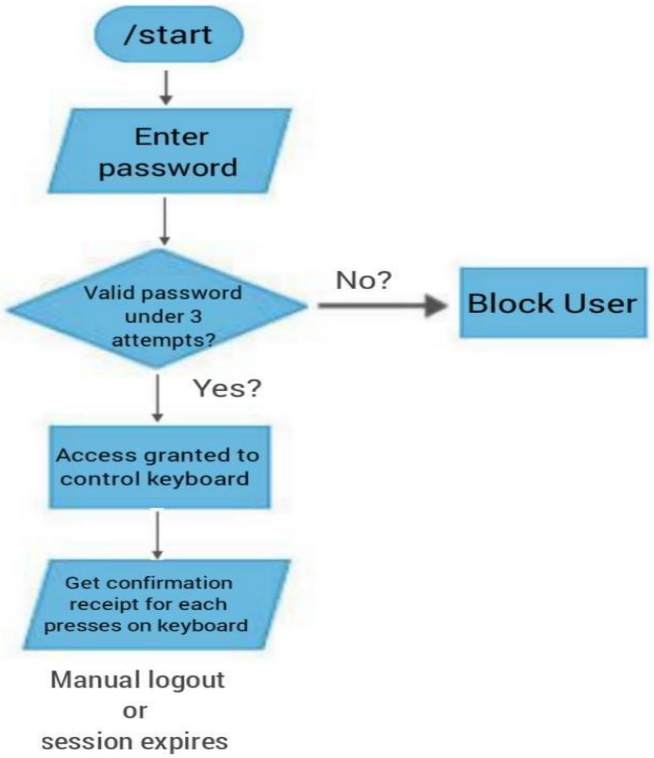
- The Telegram API is a powerful tool that enables real-time communication between the Traversify system and theuser's mobile device. With the Telegram API, users can receive updates and control their home automation system from anywhere in the world.

- Additionally, the Telegram API allows for the creation of custom chatbots that can interact with users in naturallanguage.

- By using Telegram API, we have created a highly customizable and flexible home automation system that can be adapted to meet the needs of individual users.

The use of arduino and the Telegram API in the development of home automation systems has significantly improved the accessibility and functionality of such systems, making them easier to use and more versatile.

III. METHODOLOGY



Here the above diagram shows all step through process of bot ,the Traversify bot employs a secure password authentication system, which prompts users to enter a password when they initiate interaction by pressing /start. If the password is entered incorrectly three times, the bot blocks the user's account permanently, thereby ensuring thesecurity of the system. Once the user is authenticated, the bot provides a user-friendly keyboard control panel that isdesigned to meet their specific needs. This panel enables users to control their homes or industries by sending commands to the Traversify server.

To ensure the reliability of the system, the bot sends a confirmation receipt to the user once a command is sent fromthe control panel. This receipt confirms whether the corresponding command was successfully executed or not, thereby providing real-time feedback to the user. Furthermore, to ensure the security of the system and prevent unauthorized access, the bot creates a session with apredetermined login time. The bot automatically logs the user out when the session

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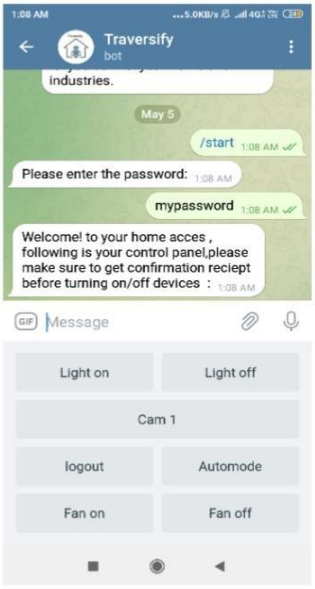
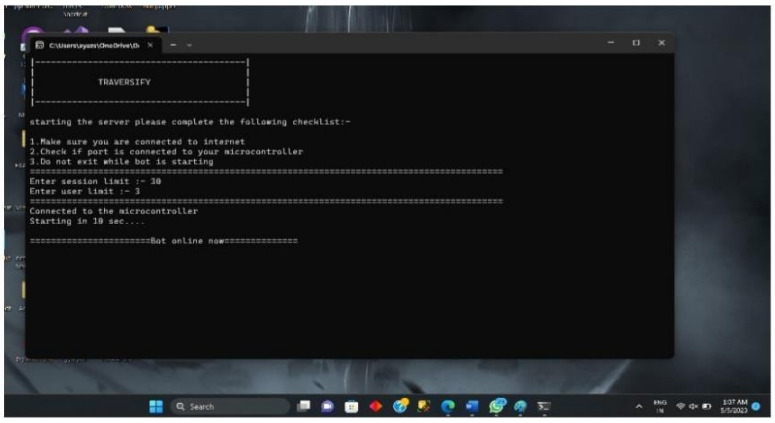
is over, which can be set by theadmin. This feature also limits the number of users who can access the system at any given time, thereby ensuring system stability and preventing overload.In the event of a network failure, the bot onboard system takes over the automation of the system to ensure that itcontinues to function even in the absence of network connectivity

IV. RESULTS AND DISCUSSION





Client side

Server side

The screenshot on the left shows the Traversify bot as seen from the client side. Users can interact with the bot to control their home automation systems through a custom-designed keyboard control panel. The screenshot on the right shows the Traversify server side, which handles all incoming requests from the bot and communicates with the home automation system to execute commands. Together, the client and server sides of Traversify provide a seamless and user-friendly home automation experience .

V. CONCLUSION

In conclusion, Traversify is a cost-effective and efficient solution for home and industrial automation. Its unique design allows for seamless control of devices without the need for third-party interference, extra SIM cards, or additional servers. The bot's ability to create a secure login session, limit the number of users, and block unauthorized access ensures the safety of the system. Additionally, Traversify's use of Telegram API makes it a cheaper alternative to other similar solutions available in the market. Traversify offers an innovative and practical solution for home and industrial ,agriculture automation

REFERENCES

[1] "Smart Irrigation System Based on IoT" by Mohanad Alhababy, Mohammed Alsharif, and Ahmed Aljaber, published in the IEEE Access journal in 2019.

[2] "IoT Based Smart Garbage Management System for Smart Cities" by Saroj Kumar Lenka and Satyananda Champati Rai, published in the International Journal of Emerging Trends in Engineering Research in 2018.

[3] "IoT-based Smart Parking System" by Sonali Gulhane, Minal Khairnar, and Smita Raut, published in the InternationalJournal of Computer Science and Mobile Computing in 2018.

[4] "IoT-based Smart Water Quality Monitoring System" by M. M. Abdullah Al Shafi, Taslim Arefin Khan, and A. K. M.Zakir Hossain, published in the IEEE Sensors Journal in 2019.

[5] "Smart Home Automation System Based on IoT" by Mayuri R. Deshmukh, Anjali V. Jadhav, and Sachin V. Jadhav, published in the International Journal of Advanced Research in Computer Engineering & Technology in 2018.