FACEBOOK ENABLED LIFE AUTOMATION SYSTEM

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Abstract— FaceBook Enabled Life Automation (FBELA) makes life simple by automating everything around us in an efficient and effective way. We are familiar with different technologies that changed the world so far as Facebook example of social media, Arduino raspberry, node MCU, Galileo development boards which are used to unleash the creativity and convert ideas into real-world also establishing IoT and many automation and sensors helped to retrieve many physical data also devices and artificial intelligence, natural language processing, neural networks, which created a massive change in the present, And we blend everything together under a single platform or space we call it as FBELA, The Facebook Enabled Life Automation, A simple and single platform to change the world around you in the simplest way possible. So you can control things around you using Facebook (also voice commands).

Keywords—Facebook, AI Chatbot, Internet of Things, NodeMCU

I. INTRODUCTION

The world of technology changes every day, and the present users are given many choices on how their lifestyle can be controlled. There exists many IoT devices today but these fail at the right point of communication. Many devices operate through a closed application such as a mobile application or a website which would only support that particular device. At present, we have different fields of technologies that satisfy user needs. There are wearables that would integrate with our lifestyle like VR, smartwatches, etc. In addition, being a social being, man can now enhance his/her social circles through websites and communities like Facebook, LinkedIn, etc. where user friendliness is high, even for ignorant users. On the other hand, we have hardware like NodeMCU, and Arduino coding that can connect the software realm to the physicalworld.

II. DRAWBACKS OFEXISTING SYSTEM

The existing system consists of various fields of new technologies available everywhere in different forms such as applications or websites. Despite having the advantage of immediate access to all technological developments, we find that users tend to be more confused on what platform to use at the right time of application. Conservative users go back to old and manual systems of controlling machines or devices. Clearly, there isa great lack of organization in our technological advancements. This leads us to believe that man has not yet made much progress in the proper implementation of his inventions.

The current system lacks integration. The user needs an application or website for each and every other device he or she needs to control. There is no proper security as each of these platforms depend on servers that are less likely used and are not popular among communities. Even with the existing automation solutions, the user will encounter problems of storage and processing as every device needs to work on some inbuilt information and this should be loaded with the application to be installed. This is not practical if thenumber of devices being controlled isincreased.

III. METHOD

In the proposed system, we make sure that the point of user interaction stays at a single platform and uses minimal interactions between the device layer and user interface layer. Process abstraction and security is given utmost importance here. This is accounted with the usage of a common social media platform like Facebook Messenger where users can gather in groups or stay individually connected with the devices in their workplaces or homes. The problem of user friendliness is overcome by having a personal AI chatbot assistant to help the user with the required instructions or commands to be used while controlling the device. There is also a provision for exploring the rising technical realities such as VR, AR, etc. through integrated wearables like Cardboards with minimum cost so that most of the active userscan witness its significance in the field of entertainment.

Fig. 3.1 shows the data flows from the user level to the end level where each device connected to the system can be manipulated. Data flow mainly occurs between user and interactive chatbot. Once user command for the device is given, the chatbot redirects these commands to corresponding servers. Hence, minimal data transmission with maximum user interaction is obtainedhere.

Fig. 3.2 shows the system architecture of FBELA. It mainly comprises of 6 modules. A common messaging application called Facebook Messenger, an AI Chatbot integrated with Messenger, an event triggering website called IFTTT, Adafruit server which updates the status values, NodeMCU microcontroller unit and physical appliances at endlevel.
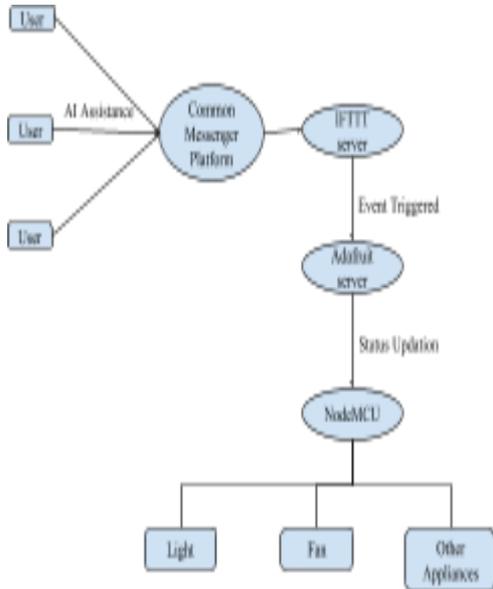
Fig. 3.1 Data Flow Diagram

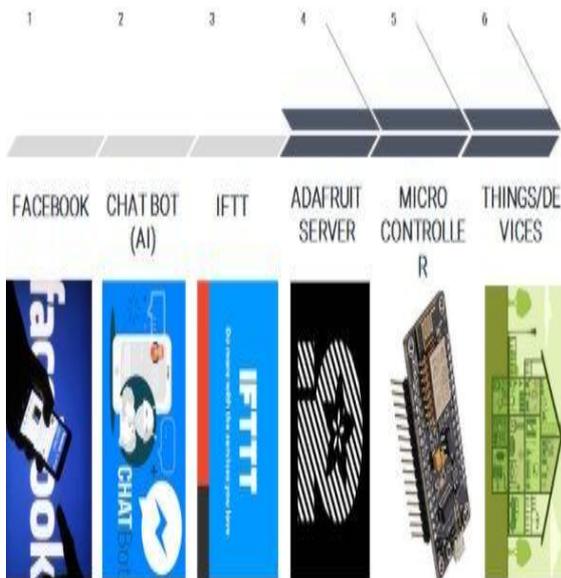

Figure 1: Use case diagram

Fig. 3.2 System Architecture

Fig. 1 shows the use case diagram showing the points of authority of the user in the proposed system. Here, we see that the user contacts the system only through the chatbot. There are no other unnecessary points of communication and the entire process is abstracted from the user. The user can input commands, have social interactions and see the change of working state in physical devices that he/she is controlling with the help of the chatbot interaction alone. He/she need not know the working of the system.
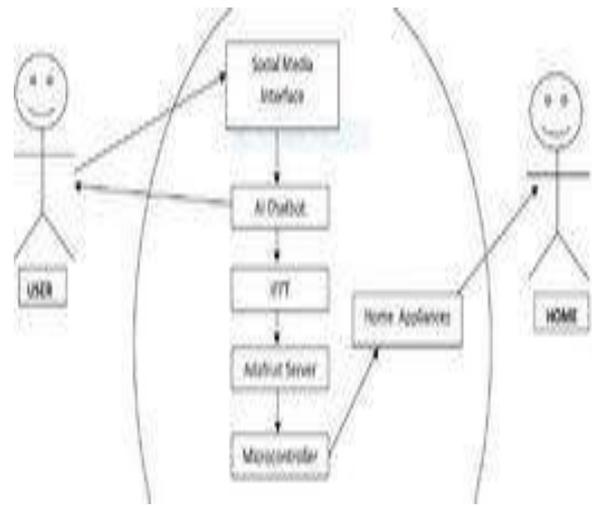
User: The user can enter commands through the Facebook Messenger chat. He/she can enquire about various instructions available, those of which can be carried out on the devices being controlled. An AI Chatbotwill assist the user(s) and provide them with the basic set of instructions needed to operate the devices on the other end. The chatbot has some output text strings set beforehand, and these messages are displayed to the user when it senses the appropriate words in input string. The user or a group of users can give commands to control a particular device through the Facebook Messenger application. An artificially intelligent chatbot can assist them and provide them with the necessary list of commands or help sections. The messages received from user is transferred to the IFTTT server which is a website to implement conditional statements. When input from user is given, that particular event is triggered and this is forwarded to the Adafruit server which will update the status values of the specified device. The values updated are fetched to NodeMCU through Arduino coding and the appliances are controlled. The appliances in the physical world change their states according to user commands. The next provision for the user is an introduction to the new realms of entertainment at minimum cost and maximum accessibility. A mobile application is created using coding in Unity3d with a VRbase.

The advantages are:

- Easycommunication
- UserFriendly
- No waste oftime
- EconomicFeasibility
- Flexible with anydevice automation

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IV. RESULTS

An Android device with optimum processing strength and good Internet connectivity is selected to test the working of the project. The Messenger application is opened and user commands are given to the chatbot, either in a group or in an individual chatbox. If the user needs help in knowing the right input command to be given, he/she will send a 'Help' message to the chatbot. The chatbot returns a message consisting of all user input commands possible in the automation system, at present. The instruction set is numbered and therefore the user need to only type in the number of the instruction or command to be carried out. The chatbot also focuses on the mental and emotional well-being of the user. This feature ensures that the coming generations will not emotionally isolate themselves due to the rapidly growing technology around them. The output is seen as a change of state in the device selected by the user in the miniature model of a house. The user is set up with a VR glass and is introduced to the VR game application developed in the Android platform. The VR game encourages the user to not only stay mentally fit by relieving stress but also promotes his/her kinesthetic movements. This way, we ensure that users do not slouch or be a victim of poor posture (which is one of the most stereotyped symptoms of using modern day technology and which may affect the user's health adversely) and force the user to make necessary body movements while actively playing the game. Later, we introduce them to a virtually created real time model of their house in which they can simulate their life, walk around, inspect and virtually connect with their surroundings even though they may be physically absent or away from their house. The user not only gets a glimpse of evolving technology but he/she can make good use of it and can have optimum standard of living with minimum prerequisite technicalknowledge.

CONCLUSION

FBELA increases the usage of IoT with the help of Facebook Messenger with the AI chatbot, which improves the speed and accessibility of the system. This provision will be easy for everyone to use. It will help to improve the lifestyle. Since Facebook is presently one of the top popular networks of the near future, this proposal's implementation and market value increases tenfold. The scope for this project is immense as its simplicity and integrity stands out among other home automation projects. FBELA covers all aspects of life and hence it is not just home automation alone. From health, workplace to entertainment, FBELA has a role to offer. Accessibility as well as the response back is higher since the only requirement is good internet connection which avoids a lot of installation space like other existing automation systems. This also saves memory space of the user since the processor needs the processing time and memory only at the time of user interaction. The IP address does not interfere here and the only security needed is the Facebook identity verification of the user. The proposed system is much more efficient and secure since almost two third of the world's population has a Facebook account and their privacy and access will stay intact withthem.

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