

PROACTIVE BOT

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Abstract : Instant messaging (IM) is a real-time communication system providing people with a medium to exchange text messages, images, audio and video conversation. Using the same concept, IM is exploited and used for system administration purpose. This paper briefly describes the functionality provided by a developed IM bot that provide system administrator with remote machine status and information. The tool proactively detects the machine presence on the IM network thus allowing system administrator to interact with them. With the real-time nature of IM, this tool would benefit system administrator with real-time system status and notification messages. In addition, the machine list within IM provides system administrator with the inventory of the machines currently being maintained. The output comparison between the programs plug in and the result from the system as shown through Linux terminal are provided which includes the information of system load average, system memory usage, logged-in user and notification service.

Keywords – Artificial Intelligence, Machine learning, Reinforcement learning, Artificial Neural Network, Bot, K-means Clustering Algorithm, Data Mining, Unsupervised Learning Algorithm.

I. INTRODUCTION

Few users will initiate a conversation with your virtual assistant on their own. To be effective and motivate engagement, the Chatbot has to be proactive. Imagine a user browsing your website, searching for specific information. Your Chatbot activates a push notification and contacts the user, offering a service that corresponds to the inquiry. If the timing is right, the user will be inclined to respond and have a conversation with the virtual assistant, who will clarify the user's needs and guide the user toward conversion. In this way, a proactive Chatbot assumes the role of a true salesperson, capable of adapting to the users expectations. But this won't happen with a click of the fingers! To be effective, your conversational robot has to be configured by a Chatbot Manager, based on relevant scenarios that are adapted to the actions performed by the users. As a result, it will be able to initiate a dialogue intelligently, at the best possible moment and embark upon a relationship that's truly personalized! Conversely, a notification sent at the wrong moment or with the wrong message might give the user the impression of being swindled or even harassed by the intrusion.

Typically, each message that a bot sends to the user directly relates to the user's prior input. In some cases, a bot may need to send the user a message that is not directly related to the current topic of conversation or to the last message the user sent. These types of messages are called proactive messages. Proactive messages can be useful in a variety of scenarios. If a bot sets a timer or reminder, it will need to notify the user when the time arrives. Or, if a bot receives a notification from an external system, it may need to communicate that information to the user immediately. For example, if the user has previously asked the bot to monitor the price of a product, the bot can alert the user if the price of the product has dropped by 20 percent. Or, if a bot requires some time to compile a response to the user's question, it may inform the user of the delay and allow the conversation to continue in the meantime. When the bot finishes compiling the response to the question, it will share that information with the user. When implementing proactive messages in your bot: Don't send several proactive messages within a short amount of time. Some channels enforce restrictions on how frequently a bot can send messages to the user, and will disable the bot if it violates those restrictions. Don't send proactive messages to users who have not previously interacted with the bot or solicited contact with the bot through another means such as e-mail or SMS.

II. PROBLEM STATEMENT

Problem Definition- Maintaining employee interest, productivity and health are getting crucial day by day due to increase in the Competitions in Software Industry and Early to Market methodologies. Also, monitoring employee's actual productive hours is challenging which affects the Annual Performance Review. The individual's performance affects the company's profits it is the process of measuring the results of a firm's policies and operations in monetary terms.

The employee needs to understand that if he does what is expected, he will be considered a performing employee. In some organizations that rank employees, this is the equivalent of a three on a five-point scale. An employee must do more than just perform to be considered an outstanding employee. The employer also needs to understand which of the employees are actually working productively and which are not. This proposed framework gives point by point execution reports to the business employers to assess them and as needs be recognize diligent employees from the lazy ones. It also helps the employers to enhance his work approach. And furthermore be progressively expert in his methods and helps in improvement of his work ethics.

III. LITERATURE SURVEY

1." SitiRahayu Abdul Aziz, Adlan Al-FarooqRazalan NoorhayatiMohamad Noor. Proactive notification system using Instant Messaging Bot (IM Bot) "

Instant messaging (IM) is a real-time communication system providing people with medium to exchange text messages, images, audio and video conversation. Using the same concept, IM is exploited and used for system administration purpose. This paper briefly describes the functionality provided by a developed IM bot that provide system administrator with remote machine status and information. The tool proactively detects the machine presence on the IM network thus allowing system administrator to interact with them. With the real-time nature of IM, this tool would benefit system administrator with real-time system status and notification messages. In addition, the machine list within IM provides system administrator with the inventory of the machines currently being maintained. The output comparison between the programs plug-in and the result from the system as shown through Linux terminal are provided which includes the information of system load average, system memory usage, logged-in user and notification service.

2."AM Rahman, Abdullah Al Mamun, Alma Islam. Programming challenges of Chatbot: Current and Future Prospective"

In the modern Era of technology, Chatbots is the next big thing in the era of conversational services. Chatbots is a virtual person who can effectively talk to any human being using interactive textual skills. Currently, there are many cloud base Chatbots services which are available for the development and improvement of the Chatbot sector such as IBM Watson, Microsoft bot, AWS Lambda, Heroku and many others. A virtual person is based on machine learning and Artificial Intelligence (AI) concepts and due to dynamic nature, there is a drawback in the design and development of these chatbots as they have built-in AI, NLP, programming and conversion services. This paper gives an overview of cloud-based chatbots technologies along with programming of chatbots and challenges of programming in current and future Era of chatbot.

3."Quanyan Zhu, Andrew Clark, RadhaPoovendran and Tamer Basar.Deployment and Exploitation of Deceptive Honeybots in Social Networks"

As social networking sites such as Facebook and Twitter are becoming increasingly popular, a growing number of malicious attacks, such as phishing and malware, are exploiting them. Among these attacks, social botnets have sophisticated infrastructure that leverages compromised user accounts, known as bots, to automate the creation of new social networking accounts for spamming and malware propagation. Traditional defense mechanisms are often passive and reactive to non-zero-day attacks. In this paper, we adopt a proactive approach for enhancing security in social networks by infiltrating botnets with honeybots. We propose an integrated system named SODEXO which can be interfaced with social networking sites for creating deceptive honeybots and leveraging them for gaining information from botnets. We establish a Stackelberg game framework to capture strategic interactions between honeybots and botnets, and use quantitative methods to understand the tradeoffs of honeybots for their deployment and exploitation in social networks. We design a protection and alert system that integrates both microscopic and macroscopic models of honeybots and optimally determines the security strategies for honeybots. We corroborate the proposed mechanism with extensive simulations and comparisons with passive defenses.

4."Hanjong CHOI, Takeshi HAMANAKA, Kanae MATSUI. Design and Implementation of Interactive Product Manual System using Chatbot and Sensed Data."

Current electric appliances provide various functions to make users lives more comfortable and fruitful. However, product instructions have become complicated with the increasing number of functions and the users take a long time to understand each electric appliance. To solve this problem, we propose an interactive product instruction system using a Chatbot. A Chabot is a framework that performs interactive talks with the users through messaging applications. e.g., Slack, Facebook messenger, LINE, and others. Users can utilize their preferred interfaces to understand how to use the electric appliances by talking to the system. To test the applicability of the system, we conducted an experiment, and the results demonstrated its usefulness.

IV. BLOCK DIAGRAMS

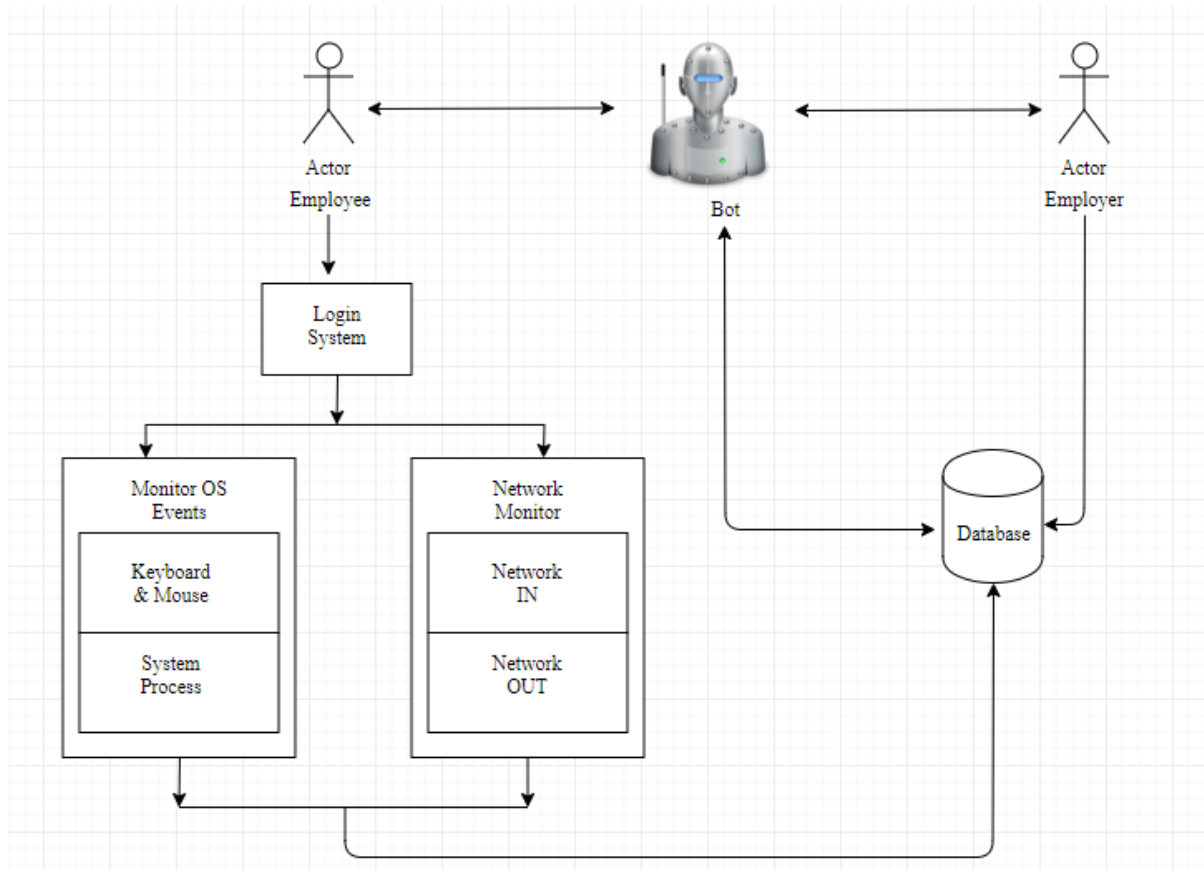


Fig 1. Block diagram

Model Description**PROACTIVE BOT**

This module co-ordinates all the activities of the employer and employee. This module formulates rules which decide when to provide notifications to the user and statistical reports to the employer. The bot continuously tracks and monitors the activities of the employee and stores it in the database. Only the Bot has access to this database; meaning the bot can read, write and modify the data as the rules allow it to! Based on this database the Bot generates a statistical report of an employee, if requested by the employer. The employer uses this report to evaluate the employee's performance and decides on his or her capability. This report is a neat measure of an employees' sincerity towards achieving their target which also helps in the growth of the business. The Bot gives specific notifications, once the employee has logged on to the system. These notifications and suggestions are based on the activities of the employee. These activities are monitored by the bot. The system idle time i.e. the Operating System (OS) events are continuously monitored by the bot including the network events. The Bot has to abide by the predefined rules while notifying the employee. The Bot gives alerts regarding health like appropriate water intake and stress relief exercises to promote a healthy mind for working. If the employees want to check their performance analysis till date they get their own detailed report which includes the amount of productive work done and time spent on social media during working hours.

EMPLOYER

This module has special privileges granted; it can formulate rules based on the company's policy to dictate what activities its employees perform. The Bot while providing critical alerts to the employee has to abide by these rules, and act accordingly. This module gets a statistical report of each employee which would help in distinguishing the truly sincere employees from the sleazy ones. The report is generated on a daily basis if that's what the employer wants or else the reports can be generated on a monthly, quarterly or annual basis. Based on these reports the employee performance is reviewed and the employees have a better chance of getting promoted as the reports reflect the efforts undertaken by them.

EMPLOYEE

The employee logs on to the system and that's when the bot starts monitoring its activities. The Employee gets notifications according to the rules periodically after certain conditions or rules are met. Based on the employees working habits the employee gets suggestions from the Bot. These notifications and suggestions are based on the activities of the employee. These activities are monitored by the bot. The system idle time i.e. the Operating System (OS) events are continuously monitored by the bot including the network events. The Bot has to abide by the predefined rules while notifying the employee. The Bot gives alerts regarding health like appropriate water intake and stress relief exercises to promote a healthy mind for working. If the employees want to check their performance analysis till date they get their own detailed report which includes the amount of productive work done and time spent on social media during working hours. The URL's visited by the employee are also monitored by the bot, and if they are not related to the work assigned to the employee then it might lead to blacklisting of those particular URL's.

V. RESULT

PROACTIVE BOT

- Dashboard
- Add Employee
- Employee List
- Applications
- Websites
- Settings

Dashboard

- Productive Hours: 123 HOURS (From the start)
- Non Productive: 50 HOURS (From the start)
- Unknown: 1 HOURS (From the start)
- Employees: 4 (Just Updated)

Productive Hours (Line chart): 8, 9, 15, 17, 24

Non Productive Hours (Line chart): 8, 9, 16

Best Employees: Top Employees Best on Productive Hours

Bottom Employees: Employees need to work hard

PROACTIVE BOT

- Dashboard
- Add Employee
- Employee List
- Applications
- Websites
- Settings

Dashboard

Add Employee
Add new employee in the system

Employee Name*

Contact No*

Machine IP*

ADD EMPLOYEE

PROACTIVE BOT

- Dashboard
- Add Employee
- Employee List
- Applications
- Websites
- Settings

Dashboard

Add Application
Add new application

Application Name *

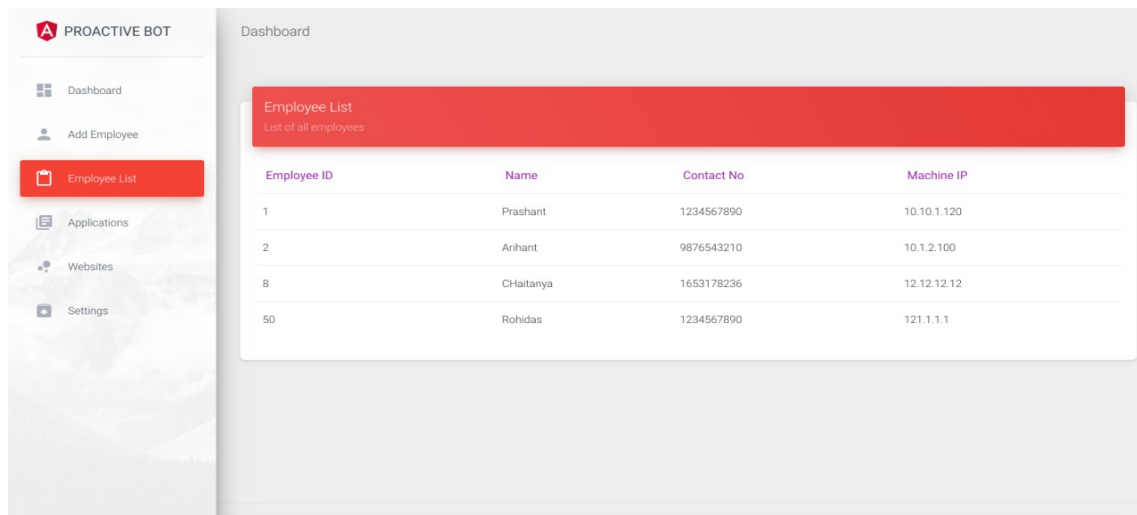
Contact No *

Type *

ADD APPLICATION

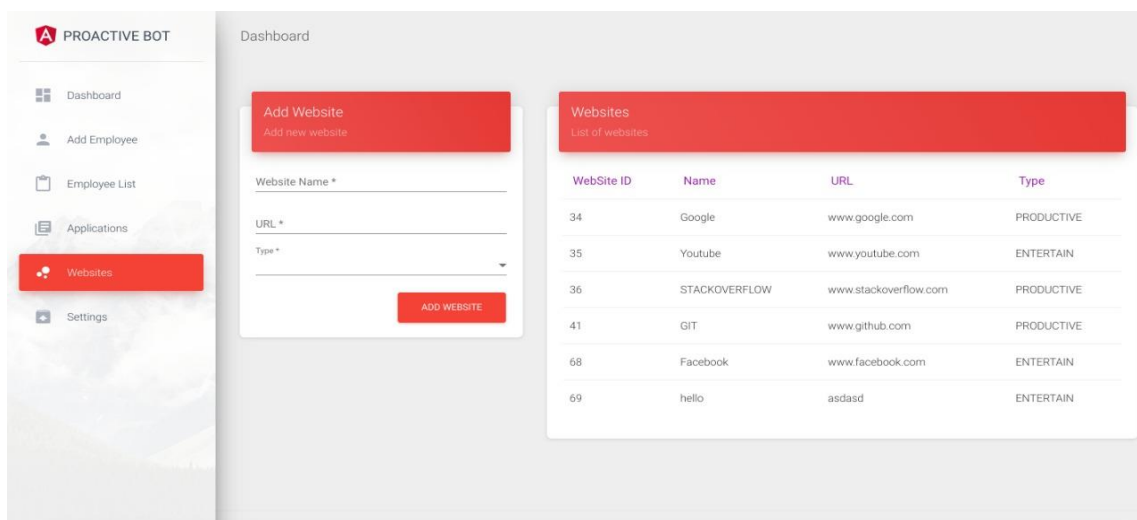
Applications
List of applications

App ID	App Name	Process Name	Type
32	CMD	cmd.exe	PRODUCTIVE
33	WINAMP	winamp.exe	ENTERTAIN



The screenshot shows the PROACTIVE BOT dashboard with the 'Employee List' section selected. The dashboard includes a sidebar with navigation options: Dashboard, Add Employee, Employee List (highlighted), Applications, Websites, and Settings. The main content area displays a table of employees.

Employee ID	Name	Contact No	Machine IP
1	Prashant	1234567890	10.10.1.120
2	Arihant	9876543210	10.1.2.100
8	CHaitanya	1653178236	12.12.12.12
50	Rohidas	1234567890	121.1.1.1



The screenshot shows the PROACTIVE BOT dashboard with the 'Websites' section selected. The dashboard includes a sidebar with navigation options: Dashboard, Add Employee, Employee List, Applications, Websites (highlighted), and Settings. The main content area displays a form to add a new website and a table of existing websites.

Add Website Form:

Website Name *
 URL *
 Type *
 ADD WEBSITE

WebSite ID	Name	URL	Type
34	Google	www.google.com	PRODUCTIVE
35	Youtube	www.youtube.com	ENTERTAIN
36	STACKOVERFLOW	www.stackoverflow.com	PRODUCTIVE
41	GIT	www.github.com	PRODUCTIVE
68	Facebook	www.facebook.com	ENTERTAIN
69	hello	asdasd	ENTERTAIN

VI. CONCLUSION

The proposed system is useful to an organization. This system is used to improve the performance of individuals and an organization as a whole. This system helps in creating a healthy work environment which is good for the employees which in turn benefits the employer. The most important thing in this proposed model is that it runs continuously in the background without the user even noticing. The system is provided with a desktop application which will be user friendly to the employees and a web interface (web page) for the employer. Our aim is to increase productivity in a healthy manner and make sure that everyone is rewarded based on the work input. Thus, it can be concluded that the proposed project will be beneficial to the organizations or companies by making use of latest machine learning technologies to develop a self-learning Proactive Bot.

VII. FUTURE SCOPE

1. Adding Natural language processing in the bot to understand the user statements.
2. Adding sentiment analysis to predict user sentiment during the work.
3. Use voice capabilities of the bot.
4. Use voice recognition with bot.
6. Help chase employers manage their money, track expenses, make payments and give basic financial advice.

REFERENCES

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3. Deployment and Exploitation of Deceptive Honeybotsin Social Networks”,”Quanyan Zhu, Andrew Clark, RadhaPoovendran and TamerBasar IEEE 2013
- 4.”Proactive notification system using Instant Messaging Bot (IM Bot)” ”SitiRahayu Abdul Aziz, Adlan Al-FarooqRazalanNoorhayatiMohamad Noor[4]IEEE 201.