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Smart AI Assistant

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Abstract - *There has been a lot of advancement in the field of Artificial Intelligence. Every person uses mobile phones or laptop in his daily life which have personal assistants.*

The proposed system uses artificial intelligence algorithms for the assistant to work. The bot does all the work of the commonly used chatbot assistants but also deploys new functionalities. It also considers user's emotion while talking. For an example, the chatbot tries to cheer up the user whenever he is upset or feeling sad.

The system also provides the user with the facility to teach the bot himself. This allows user to adjust the bot according to himself and also correct the bot when it's wrong. The technologies being used in the system are Machine-Learning (ML), Chatbot, Image processing and Neural Network. The proposed system can de deployed on personal computers, laptops, it can also be used in robotics and simulations.

***Keywords*: ML, Image processing, Chat-bot, Neural Network, self-learning.**

1. INTRODUCTION

In today's world where humans are so dependent on computers and machines, emotion recognition helps to improve openness and effectiveness of Human interaction with computer [1]. User can use the system to do any work or to talk to as a friend. The system can self-train itself to talk according to the user and the user can teach things or correct the mistakes of the system. The chatbot keeps monitoring the mood of the user from time to time and can change the way of communicating. The system after identifying the user's mood changes responds in order to comfort the user. The bot will try to improve user's mood by cheering him up if he or she is sad or upset .

The system performs some of the common functionalities like sending an email, browsing on the internet etc like the conventional chatbots. The system can also perform tasks locally on the PC like opening apps, searching or copying a file in the pc, playing songs or videos, controlling the wifi and bluetooth etc.

The system uses AI and ML algorithms to achieve above mentioned tasks. The Haar Cascade Algorithm is used to detect faces [2] from the input of the camera. The faces then are used to detect the current emotion of the user. The chatbot uses neural network to train itself from the preloaded intents stored in a Json structure. The system uses Google speech to text to understand what the user is saying.

Problem Statement:

Design a Smart AI Assistant that not only provides basic functionalities but also converses according to the user and shows human nature by understanding the user's emotion.

2. RELATED WORK

2.1 MOOD DETECTION WITH CHATBOT USING AI-DESKTOP PARTNER:

The proposed system [1] analyses the user's facial features and identifies the current emotion of the user and responds accordingly (by saying jokes or playing music etc.) via the chatbot.

Drawbacks of this system is that it doesn't focus on self-learning as it will generate same response it has stored in it's database. The system will be limited as a desktop application.

2.2 REAL TIME FACE DETECTION AND TRACKING USING OPENCV:

The system [3] implements face detection and tracking using Baar Classifier. It is implemented using a Raspberry pi which requires an external camera sensor module.

The disadvantage of this system is the additional costs of the Raspberry pi processor, operating systems for it , Storage disk cars for memory and external displays and sensors.

2.3 FEED YOURSELF, CHATBOT:

This paper [5] shows and explains different methods of improving context-response delivery. It is used to ask user's feedback which can be used by the chatbot to train itself. This paper introduces the self-learning technique.

3. PROPOSED SYSTEM

The proposed system can be classified mainly into three modules i.e Chatbot Module, Emotion Recognition Module and Self-Learning Module

3.1 ARCHITECTURE :

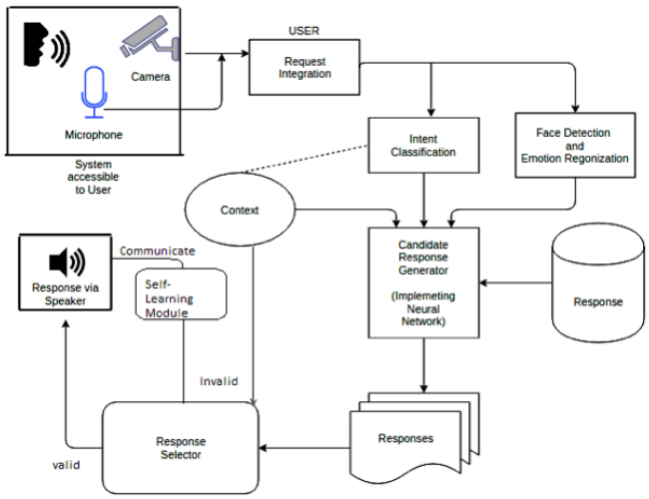

Fig -1: Proposed Architecture Diagram

3.2 CHATBOT MODULE:

The Chatbot module will implement a neural network for choosing the appropriate response from the context-response json file. The chatbot module will listen to the user and convert it into text using Google text-to-speech library. The neural network will then use the keywords and extract the meaning of the user's context to give the appropriate responses.

The Chatbot will also perform the common tasks of the available chatbot assistants but can also perform some additional tasks in the system. It also plays a role in self-learning as it communicates with the user.

3.3 EMOTION RECOGNITION (ER) MODULE:

The ER module will be activated when the user seems inactive. It will run automatically in background by accessing the camera of the device and extracting the user's facial features. It will then analyse and identify the current emotion being expressed by the user.

The Chatbot after knowing the emotion responds accordingly with the user. This helps in better interaction with the user. For example, if the ER module detects user is upset or sad, then the chatbot module will try to comfort the user by asking him or her about the problem or telling him some jokes or playing him songs or showing some funny videos.

3.4 SELF-LEARNING MODULE:

The context-response database of the chatbot will always be limited in real life [6]. This would lead to inappropriate or meaningless response.

The self-learning module provides user the ability to correct the system when he or she finds the response meaningless. The chatbot will then update the context-response database and retrain itself to overcome its mistake.

4. CONCLUSIONS

In this paper, we have discussed about the proposed architecture and the modules of the proposed system. The literature survey in this paper describes the credibility and drawbacks of the previously published/used surveys and system which our overcome by the proposed system.

FUTURE SCOPE

The proposed system will not be hardware specific and requires minimals GUI interaction, it thus can be used in many fields. It can be deployed on many devices like mobile phones, laptops, computers etc. It can also be deployed in industries as to monitor the health and mind state of the user and also control the automated industries.

The proposed system can also be introduced with a humanoid robot leading to better human-robot interaction. In future, it can also be used in automobiles as a driver's assistant that monitors the driver's activity and can advise the driver to stop or use auto-pilot to drive the car. The driver could talk to the assistant for passing his time or for some functionalities of car like controlling music or ac or diagnostics.

REFERENCES

1. G. M. Mate Nikhil Wadekar , Rohit Chavan, Tejas Rajput and Sameer Pawar , "Mood-Detection with Chat bot Using AI-Desktop Partner", in International Conference on Academic Research in Engineering and Management,2017.

2. R N Daschoudhury, Rajashree Tripathy, "Real-Time Face-Detection And Tracking Using Haar Classifier on Soc", in International Journal of Electronics and Computer Science Engineering.2014

3. Professor P Y Kumbhar, Mohammad Attaullah, Shubham Dhere, Shivkumar Hipparagi, "Real Time Face-Detecting And Tracking Using Opencv", In International Journal For Research In Emerging Science And Technology, Volume-4, Issue-4, April 2017.

4. Prof. Unmukh Dutta, Shyamol Banerjee, "An Intelligent Text Processing for Emotion Detection in Text", in International Journal of Advanced Research in Computer Science and Software Engineering, 2016.

5. Michael Jones, Paul Viola,"Rapid Object Detection using a Boosted Cascade of Simple Features" ,in Accepted Conference On Computer-Vision And Pattern Recognition 2001

6. J. Li, D. Jurafsky, J. Gao, M. Galley, and W. Monroe "Deep reinforcement learning for dialogue generation", CoRR, 2016.