FRAMEWORK FOR THE HUMAN-COMPUTER INTERACTION ARTIFICIAL INTELLIGENT SYSTEMS

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ABSTRACT: Human-computer interaction artificial intelligent system has become more necessary in the African region especially in Nigeria. Local innovative capabilities experience challenges with awareness, non-functionality of the system, and local professional teams carrying out local innovations. However, current human-computer interaction (HCI) guidelines are limited in their applicability to local needs. The paper aims to improve the interactions between users and designed technologies through the user interface. The objectives are to promote usability and maintain the HCIAI system (robot) efficiently; to create awareness of the functionality of HCI in our daily use; and to increase local innovative capabilities and develop the fundamental concepts within our environment. This paper describes an intuitive interaction process with specific attributes allowing interactions between humans and the intelligent system as well as eliciting target experience and making it more appealing to user interface designers as a tool.
KEYWORDS: Innovative, Human-computer interaction, Artificial intelligence, environment, user interface designer, local innovative

1. INTRODUCTION

Human-Computer Interaction (HCI) is the study of planning and design of the interaction between users and computers. Interaction between users and computers occurs at the user interface. The intellectual roots of AI (artificial intelligence) dated back to the early studies of the nature of knowledge and reasoning. In the transformation of society, medical sectors, and education sectors the use of AI has been of constant value Human-Computer Interaction Artificial Intelligence (HCIAI) is the study of the interaction between humans and AI tools to improve the usability and maintain the performance evaluation of the system at the user interfaces. Several developing countries are faced with countless numbers of faults in the aspect of complementing HCI with the use of Artificial Intelligence (AI) in Nigeria. These problems call for immediate attention for the researchers to properly investigate and recommend solutions to these problems that affect the local environment.
If these issues are not resolved, the involvement of professionals in academia, industry, and other social areas within our community will continue to be affected because HCIAI applications have not yet spread out for the local environment.

2. RESEARCH FRAMEWORK

After conducting a systematic review of HCI and AI, the research paper has been established to examine the HCIAI system's behaviour and response patterns to human acts and replies. HCI is a broad field that overlaps user-centered design, user interface design, and user experience design. The architecture of the system design for any HCIAI is on a three-tier architecture, such as presentation tier, middle tier, and database tier (as shown in Fig. 1). The presentation tier consists of the user interface, designed using programming language and the database management system. The middle tier contains the source code and logic used to process the performance level of the intelligent system used for data captured from the presentation tier. The database tier is the part of the system that is responsible for storing the data.

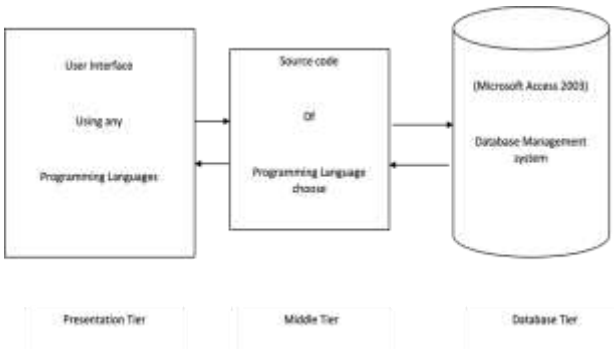

Fig.1. The three-Tier architecture of an HCIAI system [fieldwork]

An algorithm in fig. 2 is for a lenient environment and platform to achieve the stated aim.

Algorithm Design

Step 1 – Start
Step 2 – Input password and Login
Step 3 – Display the Main menu
Step 4 – Input Choice
Step 5 – If the choice is 'Execution' goto step 6, otherwise goto step 11
Step 6 – Display action
Step 7- Processes begin
Step 8 – Save processes to database
Step 9 – If the choice is 'Performance evaluation' goto step 10
Step 10- Display performance evaluation interface
Step 11 – Load codes
Step 12 – Input performance evaluation values
Step 13– Display performance evaluation remark
Step 15 – Save remark to database
Step 16 – If the choice is 'view/query database' then goto step 17 else goto step 19
Step 17 – Display database records
Step 18 – Query database by action/process
Step 19 – Display matching records
Step 20 - If the choice is 'quit' goto step 21
Step 21 - Stop

This algorithm implements the running of an Artificial Intelligence tool. This tool will showcase the behaviour and response of a computer system. The patterns in which human acts and replies, promotes usability and maintains the HCIAI system (robot) efficiently. These will create awareness of the functionality of HCI in our daily use and increase local innovative capabilities.

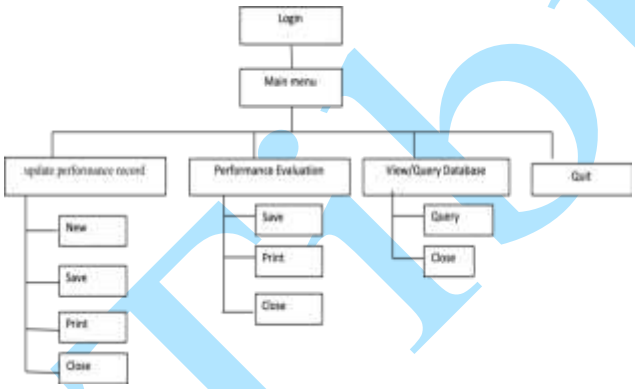

Fig. 2: System Design Layout/Module

3. HCIAI MODELLING

This model will use cases during the analysis phase of design to identify system partition and functionality between the actor's model (the user of the system) and the data model, as presented in Fig. 3. The parameters for rating the performance are speed for communications between the AI tool and user interface and instruction execution for the value assigned based on the character of the AI tool used. Through the user interface, the result of the system gives a remark about the performance of the HCIAI system. The database design of the fields is to hold the performance evaluation information.

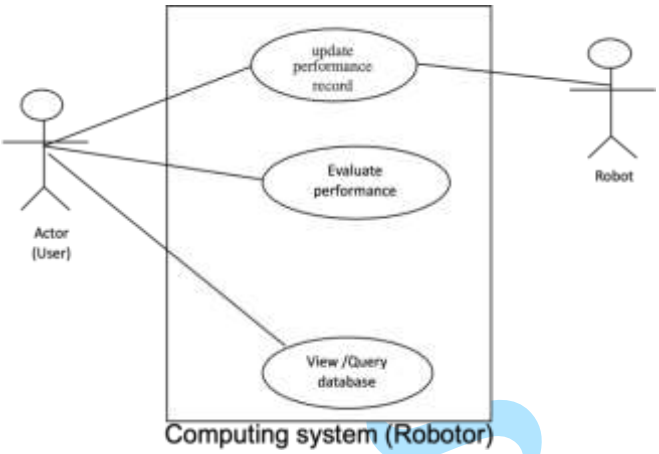

Fig. 3. Robotor / computing system (use case diagram)

At the implementation level of HCIAI (as depicted in Fig. 3), the Actor/Actress is an autonomous system connected to a decentralized system that constitutes a robotor. A robotor is a computing system that users interacted with as a robot controller. Robots have a particular interface of HCI (Human-Computer Interaction). The computing system consists of four main modules:

Update Performance Record Module: This module enables the database to be updated by the system's record.

Performance Evaluation Module: This module enables the system's performance to be evaluated, saving the information to the database, and print the evaluation forms.

View/Query Database: This module enables the displays of database records and allows the user to query the database records through a Primary key.

Quit: This module terminates the program. 'Quit' is embedded in Fig. 3 but serves as an exit module in Fig. 2.

4. CONCLUSIONS

A research framework that examines the HCIAI system's behaviour and response patterns to human acts and replies has been established. The frameworks will assist in incorporating localized HCIAI ideas to promote usability and maintain the HCIAI system (robot) efficiently, create awareness on the functionality of HCIAI in our daily use, increase our local innovative capabilities for society, medical line, educational sector, and other applications. The awareness of local innovative design of human-computer interaction artificial intelligent systems must be effectively carried out. To reduce human stress and error in most processes. By bringing robots into better alignment with their behaviour and effectiveness, the community will

have richer information with which to make a variety of personnel decisions and give manufacturers more accurate information about how well their products perform. Finally, the system will ensure accurate computation of the variables inputs to arrive at a final decision.

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