Crafting of User Friendly Multiple Electronic Simulation Device

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Abstract—Analysis that humans on Earth are being capitated to Electronic Devices. So we assessed that the simulation device with a user friendly interface on a super computer for multipurpose tasks and general purpose.

This model is to craft a device which is useful to perform various activities that will be very much innovative and informative. This device is crafted under a super computer central processing unit of high performance and which is portable.

Keywords—Notion, Apparatus, About the components, Craftmanship, Applications.

I. INTRODUCTION

A. An analysis came to know that most of humans on Earth are being capitated to Electronic devices. So we assessed that the simulation device with a user friendly interface on a super computer.

B. We planned to craft a device which is useful to perform various activities that will be very much innovative and informative. This device is crafted under a super computer central processing unit of high performance and which is portable.

C. This simulation device can be held in hands and easy to use. Device is completely based on touch response with a webcam and works on voice assistant. This crafting is done with the device known as Raspberry pi.

II. EASE OF USE

A. Hardware

1] Raspberry pi[4b]

• Quad core 64-bit ARM-Cortex A72 running at 1.5GHz

• 1, 2 and 4 Gigabyte LPDDR4 RAM options

• H.265 (HEVC) hardware decode (up to 4Kp60) 3D Graphics

• Supports dual HDMI display output up to 4Kp60 2.2 Interfaces

• 802.11 b/g/n/ac Wireless LAN

• Bluetooth 5.0 with BLE

• 1x SD Card

• 2x micro-HDMI ports supporting dual displays up to 4Kp60 resolution

• 2x USB2 ports

• 2x USB3 ports

• 1x Gigabit Ethernet port (supports PoE with add-on PoE HAT)

• 1x Raspberry Pi camera port (2-lane MIPI CSI)

• 1x Raspberry Pi display port (2-lane MIPI DSI)

• 28x user GPIO supporting various interface options: – Up to 6x UART – Up to 6x I2C – Up to 5x SPI – 1x SDIO interface – 1x DPI (Parallel RGB Display) – 1x PCM – Up to 2x PWM channels – Up to 3x GPCLK outputs 6

2] 7" TOUCH SCREEN LCD TFT DISPLAY
3] WIRELESS KEYBOARD
4] EXTERNAL MEMORY
5] WEB CAM
6] WIRELESS CHARGER
7] BATTERY
8] POWER SUPPLY

III. DATA GENERATED BY PRIOR RESEARCH

A. INTERFACING OF ALL COMPONENTS IS PROCESSED

B. Applications are being processed in device

C. Web interfacing is done

D. Lcd interfacing is done

E. Power supply and battery backups are being tested

F. Frame of the device is being under process

G. Hardware changes are done

H. Wireless charger should be implemented

I. Voice assistant has to be interfaced with the pi so it works on voice command too

IV. NOTION

A. Carfting of user friendly multiple electronic simulation device is crafted using the Raspbeery Pi moduel, which is a low cost, credit-card sized computer module that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little deivce that enables people of all ages to explore computing, handles hardware and software programming or coding and to learn how to program in languages like Xilinx, Jawa, Matlab, Scratch, Python and many other programable software. It's capable of doing everything you'd expect a desktop computer to do, from browsing the internet and playing high-definition video, to making spreadsheets, wordprocessing and playing games.

B. Raspberry pi provides its own software and can install other software from various platforms. The raspberry pi hardware has evovled through seveal versions that feature variations in the type of the central processing unit, amount of memory capacity, networking support and peripheral-device support with various software development tools.

C. Software development tools

• Blue J – for teaching Java to beginners.

• Xilinx software – is a discontinued software tool from Xilinx for synthesis and analysis of HDL design, which primarily targets development of embedded firmware for Xilinx FPGA and CPLD integrated circuit(IC) product families.

• Ninja-IDE – a cross-platform integrated development environment(IDE) for Python.

• MATLAB – is a proprietary multi-paradigm programming language and numeric computing environment developed by Math Works. MATLAB allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces and interfacing with programs written in other languages.

• Scratch – a cross-platform teaching IDE using visual blocks that stack like Lego, originally

developed by MIT's lifelong Kindergarten group. The Pi version is very heavily optimized for the limited computer resources.

• Circuit Designing – Circuit designing using tinker cad.

D.Internet of Things in device
VOICE COMMAND SYSTEM

• This system works on the primary input of a user's voice. Using voice as an input, we were able to convert it to text using a speech to text engine. The text hence produced was used for query processing an fetching relevant information. When the information was fetched, it was then converted to speech using speech to text conversion and the relevant output to the user was given. Additionally, some extra modules were also implemented which worked on the concept of keyword matching. These included telling time, weather and notification from social application.


WIRELESS CHARGING
Identify applicable funding agency here. If none, delete this text box.

• This system can be charged on wireless charging module with the help of coins which can be added to the module of the device , as it was in R&D stage it is getting charged slowly. Additionally we were use a power bank to give

along battery backup to the device so that the sudent can use it for a long run.
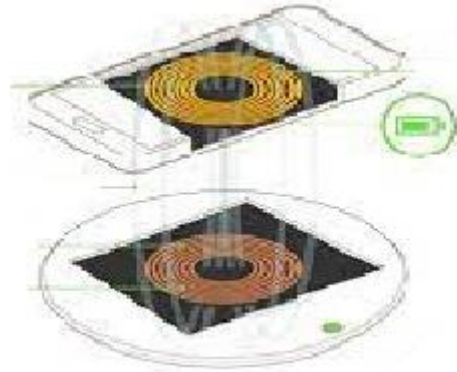
E. Potential Areas

1. Computing machines can made suitable for engineers in industry as a hand held tab with a cost comparable to the student version of the device to complete their assigned task.

2. As it is portable, an engineer can carry this even after his working hours in the office.

3.Online Conferences can be conducted to show their work while simulating the same to the team leaders.

4. Testing of the overall project can be done and results can be shared.
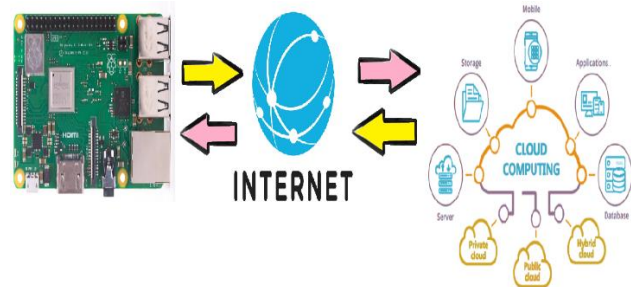
F. Some Common Mistakes

• The interfacing went bad.

• The power supply done to components short circuited as over passing of voltage.

• Installing of multiple applications compatiable with the os.

• Shorting of components when conectimg them together.

G. Result

V. FURTHER UPDATION

The existing Cloud Computing techniques will give the potential data transfer under 5G technology.Different types of industries can be interconnected due to cloud based applications.Use of Web services enable us to interact with different servers.Security can be implemented by the use of simple TCP/IP protocol.

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