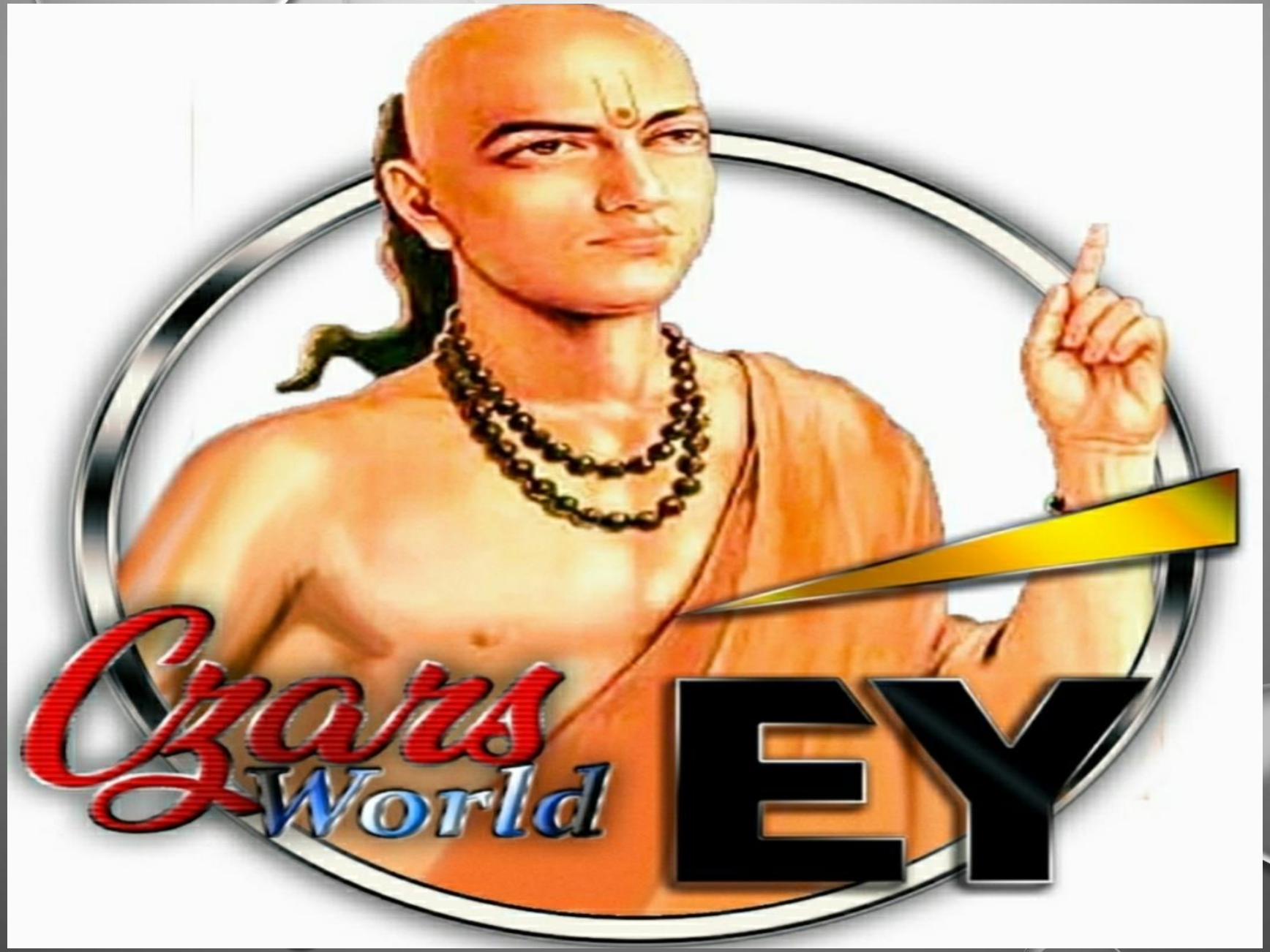

Czars
World
EY

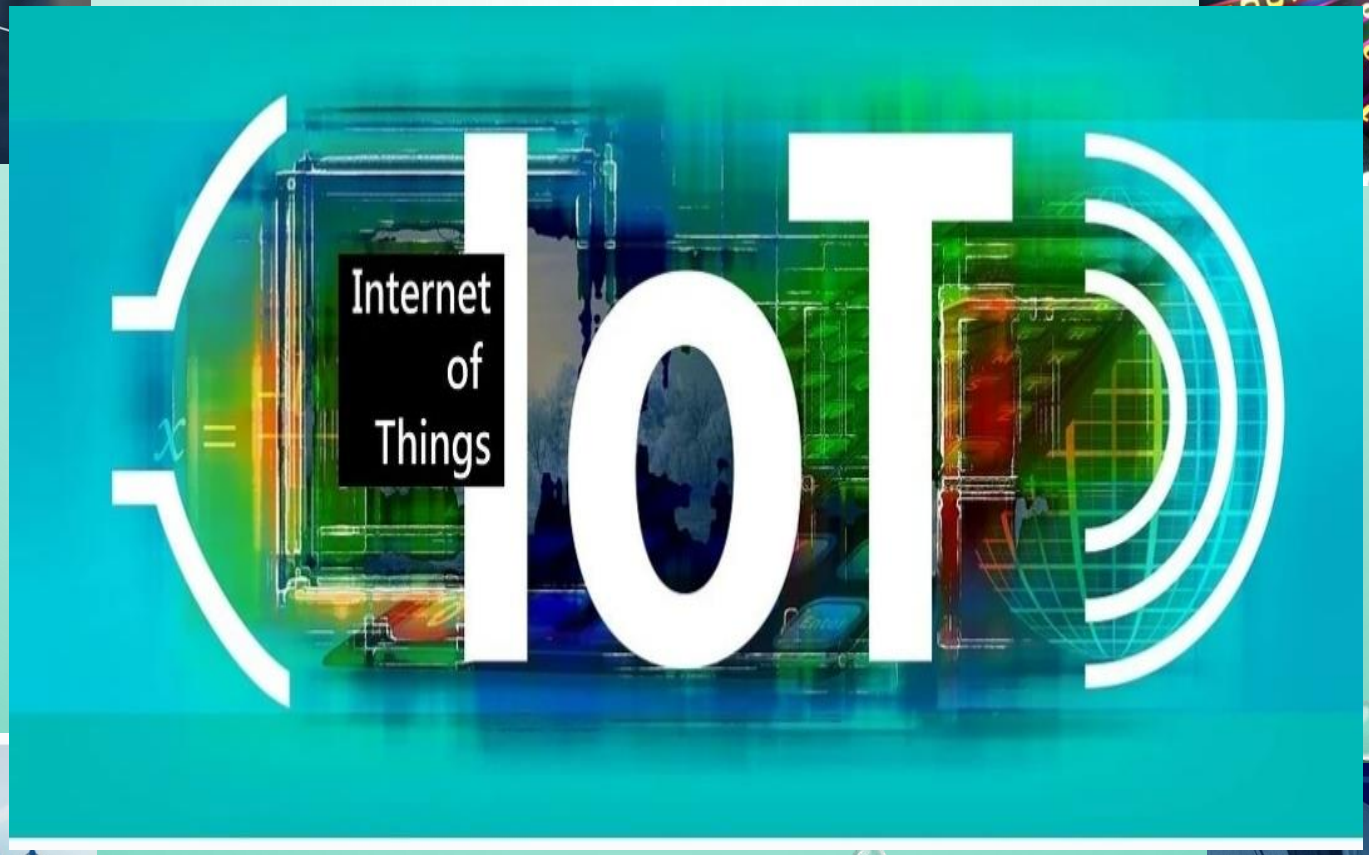
WELCOME

TO

MY

PRESENTATION

BY M. KAVITHA


Internet
of
Things
IoT

PART -1 AGENDA :

- What is iot ??
- Usage of IOT
- Benefits in daily life
- Features of IOT
- Best applications of IOT in world
- What is Raspberry Pi ?
- Structure of Raspberry pi hardware And it's uses
- Different types of Operating systems
- Raspberry pi operating system installation

WHAT IS IOT ??

THE TERM IOT REFERS TO THINGS THAT WE USE EVERYDAY THAT ALSO CONNECT TO THE INTERNET , ALLOWING US EITHER CONTROL OR RECEIVE DATA ABOUT THAT THING FROM OUR SMARTPHONE OR COMPUTER

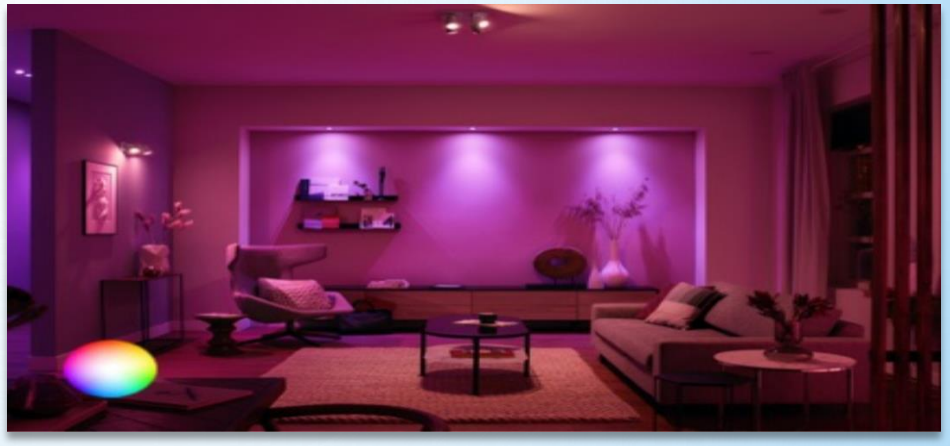
USES OF IOT IN EVERY DAY LIFE

- WE USE IOT IN OUR EVERYDAY LIFE INCLUDE :

1.*SMART APPLIANCES (STOVES, REFRIGERATORS, WASHERS ,DRYERS , COFFEE MACHINES, SLOW COOKERS) .*

2.SMART SECURITY SYSTEMS , SMART LOCKS , SMART DOOR BELLS

- *3 . SMART HOME BULBS (THAT CONTROL LIGHTING , HOME HEATING AND COOLING)*



- *4. FITNEES TRACKERS , SLEEP TRACKERS & SMART SCALES .*

Sleep trackers

FITNESS TRACKER

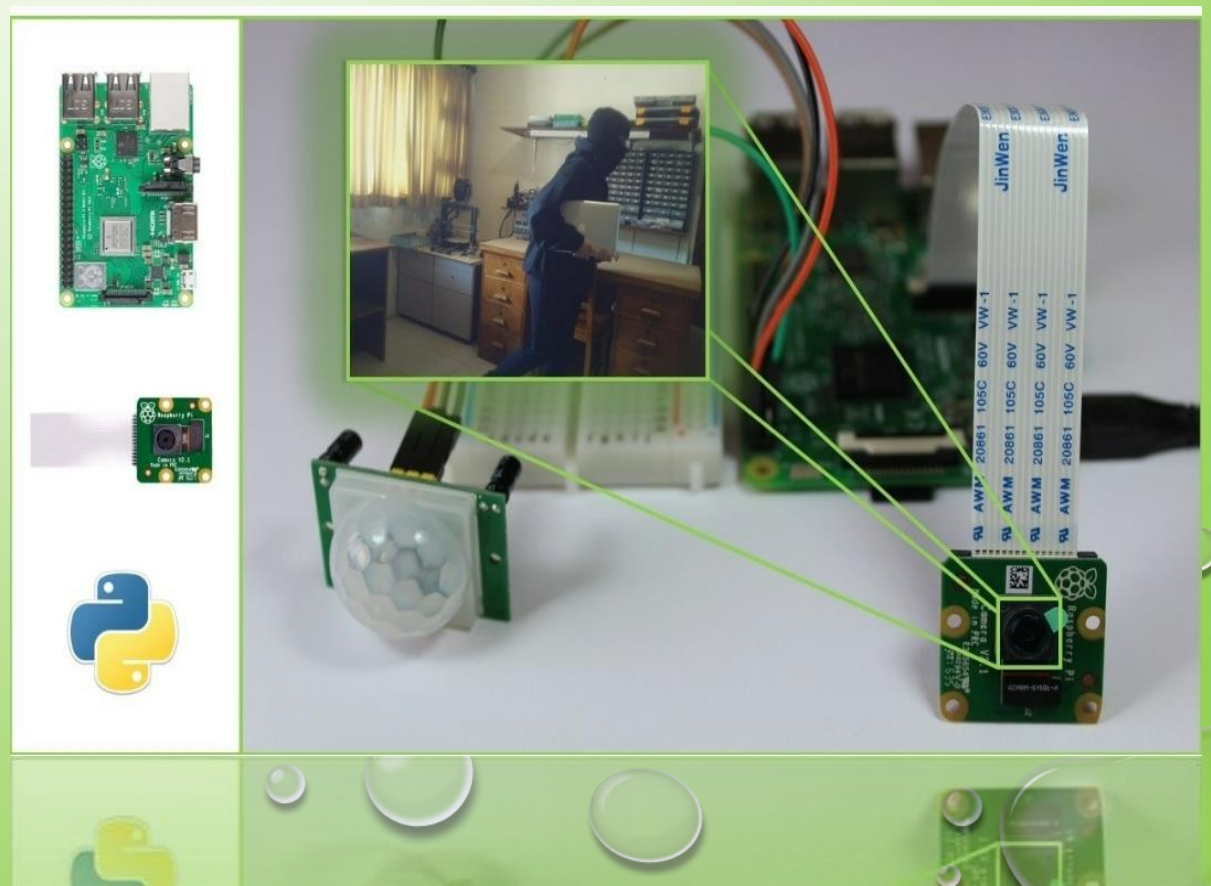
5.SMART ASSISTANTS (AMEZON ALEXA OR APPLE'S SIRI)

- **AMEZON ALEXA** :It is capable of voice interaction, music playback, making to-do lists, setting alarms, streaming podcasts, playing audiobooks, and providing weather, traffic, sports, and other real-time information, such as news. Alexa can also control several smart devices using itself as a home automation system.

- **APPLE'S SIRI** :THE ASSISTANT USES VOICE QUERIES AND A NATURAL-LANGUAGE USER INTERFACE TO ANSWER QUESTIONS, MAKE RECOMMENDATIONS, AND PERFORM ACTIONS BY DELEGATING REQUESTS TO A SET OF INTERNET SERVICES.

ADVANTAGES OF IOT

1. ***COMMUNICATION :*** *IOT ENCOURAGES TO COMMUNICATION BETWEEN DEVICES, ALSO FAMOUSLY KNOWN AS MACHINE TO MACHINE COMMUNICATION*
2. *AUTOMATION OF DAILY TASKS LEADS TO BETTER MONITORING DEVICES .*
3. *EFFICIENT AND SAVES TIME*
4. *ENHANCED SECURITY*
5. *REDUCTION IN OPERATIONAL*
6. *BETTER HEALTH*
7. *EFFICIENT USAGE OF ELECTRICITY & ENERGY*
8. *STAY CONNECTED*
9. *QUICK PROCESS*
10. *ACHIEVE CUSTOMER CENTRICITY*



FEATURES

- **The most important features of *IOT* on which it works are connectivity , analyzing , integrating , active management , artificial intelligence, sensing , endpoint management .**
- **connectivity** : *connectivity refers to establish a proper connection between all the things of IOT to IOT PLATFORM, it may be server or cloud.*

After connecting the IOT devices, it needs a high speed messaging between the devices and cloud to enable reliable, secure & bi-directional communication .

2 . *ANALYZING* : *After connecting All the relevant things, it comes to real time analyzing the data collected & use them to build then effective business intelligence .*

If we have good insight into data gathered from all these things, then we can call our system as smart system.

3 . *INTEGRATING* : *IOT Integrating the various modelsto improve the user experience as well .*

4 . ARTIFICIAL INTELLIGENCE : IOT makes things smart and enhances life through the use of data .

Ex : If we have a coffee mechine whose beans have going to end, then the coffee mechine itself order the coffee beans of your choice from the retailer.

5. SENSING : The sensor devices used in IOT technologies detect &measure any change in the environment &report on their status .

IOT Technology brings passive networks to active networks .

Without sensors, there could not hold an effective or true IOT environment .

6. ACTIVE MANAGEMENT : IOT makes the connected technology, product, or services to active engagement between each other .

7 . ENDPOINT MANAGEMENT : it's important to be the end point management of all the IOT system Otherwise it makes complete failure of the system .

Ex : **if a coffee machine itself order the coffee beans when it goes to endbut waht happens when it orders the beans from a retailer &we are not present home for few days. It leads to failure of the system.**

So there must be a need of end point management !!..

BEST APPLICATIONS IN REAL WORLD

1.DRIVERLESS CARS : ONE OF THE MOST FUTURISTIC APPLICATIONS OF IOT IS THE " AUTONOMOUS CAR ".

- THE CARS DON'T HAVE DRIVERS AND ARE SENSIBLE ENOUGH TO TAKE YOU TO YOUR DESTINATION ON THEIR OWN .
- THESE ARE EQUIPPED WITH TONS OF DEVICES LIKE SENSORS, GYROSCOPE, CLOUDARCHITECTURE, INTERNET AND MOVE, THESE CARS SENSE HUGE CHUNKS OF DATA ON TRAFFIC, PEDESTRIANS, CONDITIONS OF ROAD SUCH AS SPEED BREAKERS, CORNERS, SHARP TURN ETC.. IMMEDIATELY PROCESS THEM AT RAPID SPEEDS.

- THIS INFORMATION PASSED TO THE CONTROLLER WHICH TAKES DRIVING DECISIONS, AI &MECHINE LEARNING ARE CRUCIAL ASPECTS OF DRIVER LESS CARS

2 . AMAZON GO : THE COMPANY DECIDED TO USE IOT TO BACK IT RETAIL STORES, WHICH WILL HAVE NO CASHIERS OR CASH COUNTERS.

- USING SENSORS, ONLINE WALLETS AND YOUR ACCOUNT COMPUTER AND MACHINE WILL TAKE OVER THE

BRICK AND MORTAR STORES AND STILL GIVE YOU ONLINE EXPERIENCE .

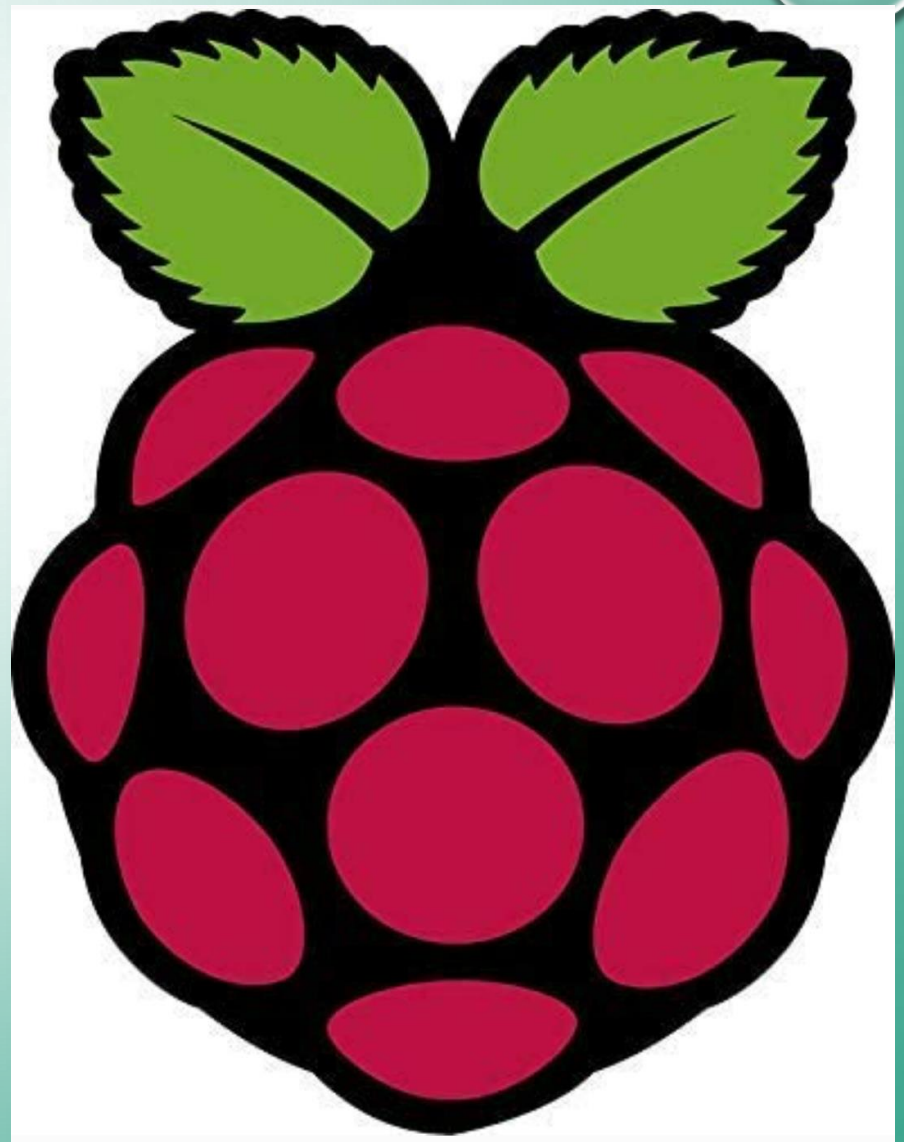
3. SMART HOMES : IT'S DESIGNED TO PROVIDE YOU OPTIMUM SECURITY AND CONVENIENCE, SMART HOMES ENSURE YOU COME BACK TO A PARADISE.

4.WEARABLES :ALSO KNOWN AS WEARABLE TECHNOLOGY, IS A CATEGORY OF ELECTRONIC DEVICES THAT CAN BE WORN AS ACCESSORIES, EMBEDDED IN CLOTHING, IMPLEMENTED IN USER'S BODY OR EVEN TATTOOED ON SKIN.

5.SMART HOTELS : THEY PROVIDE ALL COMFORTS, SECURITY AND ENTERTAINMENT YOU NEED, THEY PROVIDE EXCELLENT FOOD AND DRINK.

*EASY TO BOOK SMART HOTELS

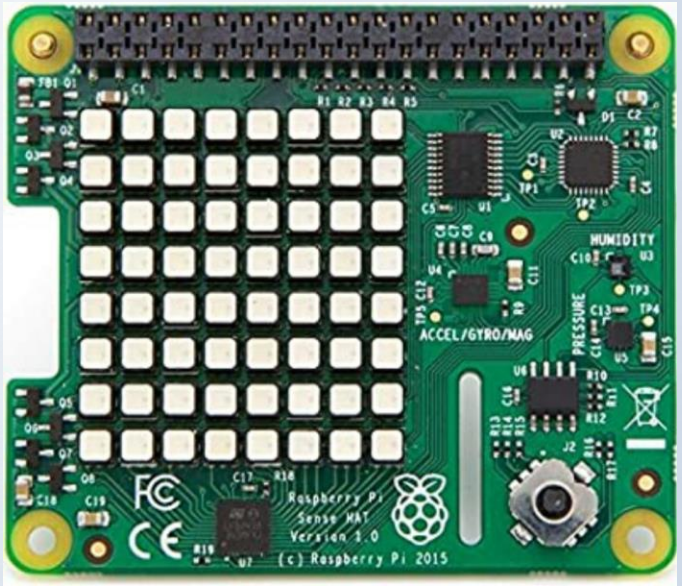
WHAT IS RASPBERRY PI 💭



WHAT IS RASPBERRY PI

" SERIES OF VARIOUS SMALL SINGLE –BOARD COMPUTERS BUNDLED WITH ON BOARD WIFI, BLUETOOTH AND USB BOOT CAPABILITIES, GPIO S ETC..

- *LOW COST CREDIT CARD SIZED COMPUTER BUT FULLY FUNCTIONAL &PROGRAMMABLE COMPUTER WITH MODERN HIGH DEFINITION MULTIMEDIA CAPABILITIES*
- *PLUGS INTO A MONITOR & USES A KEYBOARD &MOUSE*
- *CAPABLE OF EXPLORING COMPUTING AND LEARN HOW TO PROGRAM*
- *RASPBERRY PI 3 RELEASED IN FEBRUARY 2016*
- *RASPBERRY PI = RASPBERRY OPERATING SYSTEM + PI (PYTHON LANGUAGE)*
- ***CAPABILITIES ;***



1. BROWSING THE INTERNET &PLAYING HD VEDIO
2. MAKING SPREADSHEETS & WORD–PROCESSING
3. PLAYING GAMES
4. INFRARED CAMERAS &SECURITY SYSTEMS
5. MUSIC MECHINES &DETECTORS FOR WEATHER STATIONS..

RASPBERRY PI HARD WARE :

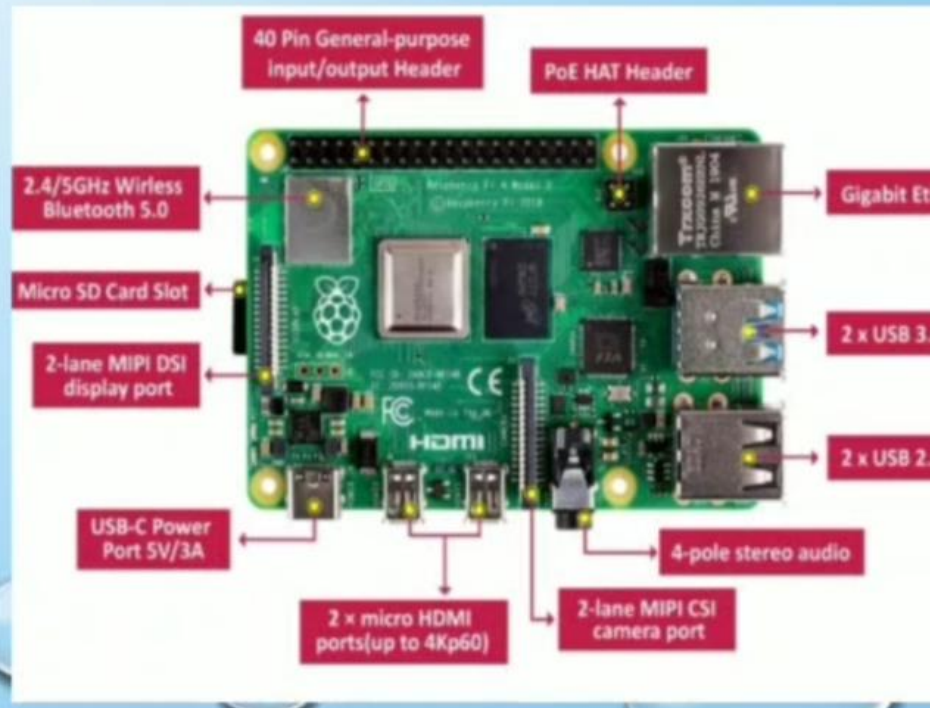
- THE RASPBERRY PI IS A CHEAP COMPUTER WHICH RUNS LINUX BUT ALSO PROVIDES A SET OF GPIO S PINS THAT ALLOWS YOU TO CONTROL ELECTRONIC COMPONENTS FOR PHYSICAL COMPUTING &EXPLORE IOT .
- *The raspberry pi comprises of the following*

1. *A programming memory (RAM)*
2. *ARM CPU / GPU processor and graphic*

This is a Broadcom BCM2835 system on a chip that made up of a ARM CENTRAL PROCESSING UNIT & Vedio core 4graphics processing unit.

* ***Cpu*** *handles all computations that makes a computer work*
* ***GPU*** *handles graphics output*

3. *micro* SD (SECURE DIGITAL) *slot : An SD card with Operating system installed is required for booting the device.*
4. *Gigabit Ethernet :This connector allows for wired access and is only available on the model B*



. **USB (UNIVERSAL SERIAL BUS)** :*This is a common connection part*

Peripheral devices of all types including your mouse and

That provide raspberry pi with additional functionality.

MODEL A - ONE PORT ; MODEL B - TWO PORTS

We can use USB hub to expand the no. Of ports or plug your mouse

Into keyboard if it has its own usb port.

.**HDMI (HIGH DEFINITION MULTIMEDIA INTERFACE)** : *This connector*

allows you to hook up a high definition television or other

Compatible devices using an HDMI cable.

.*GPIO 's*(**GENERAL PURPOSE INPUT OUTPUT**) : *it's a standard*

Used to connect microcontroller to other electronic devices .

The raspberry pi has 2 rows of GPIO pins, which are connections

Between the raspberry pi and the real world.

Great uses of raspberry pi

- It's a capable little device that enables people of all ages to explore computing and
- To learn how to program in languages like scratch &python .
- Web server
- Laptop
- Kids first computer
- Robot car
- Game emulator
- Wifi extender
- Home theatre
- Weather station
- FM radio station
- Media server

Different types of operating systems

RISC operating system

Windows 10 IOT Operating system

Free BSD operating system

Plan 9 From bell labs

Net BSD operating system

TO DOWNLOAD Raspberry PI OPERARATING SYSTEM

WWW. raspberry pi. Org

Click on raspberry pi download

Displays NOOBS & RASBEAN

Select NOOBS

Displays NOOBS &NOOBS LITE

If 32 GB O. S →NOOBS
If 16 GB O. S →NOOBS LITE

Download it as "Zip file"

Extract the content

Copy into NOOBS folders from NOOBS file

Paste it in the (SDHC) SD card

Class 10 memory card

Insert memory card into raspberry pi

Turn on raspberry pi

Click on Raspbian

Click on install

Success

Reboot it

DISADVANTAGES OF RASPBERRY PI

- NO BUILT-IN ANALOG TO DIGITAL CONVERTER AVAILABLE
- PROCESSOR IS NOT VERY FAST, BECAUSE ETHERNET IS ONLY A 10/100 .
- UNABLE TO DO ANY COMPLEX MULTITASKING
- ACCESSING HARDWARE IS NOT REAL-TIME . IF THE CPU IS BUSY, THEN INTERFACING WITH HARDWARE CAN BE DELAYED .
- ITS NOT USEFULL FOR BIGGER BUSINESS THAT ALREADY HAVE A BIG SERVER .
- IT DOESN'T HAVE ENOUGH POWER TO DRIVE INDUCTIVE LOADS.


THANK YOU


Gora
World
EY