RaspberryPi Cluster

Kanishkan M S,ME19B192 01/05/2020

Project Aim

To build a cluster such that all the Pis in the cluster work at the same time. If the master is given some command then all the slaves also respond.

Project description:

- **Raspberry Pi 3 B:** Raspberry Pi is a Microprocessor which has 40 pins with 27 GPIO pins, it has a 1 GigaBytes of RAM and an SD card slot for the storage or the ROM,it can be used as a mini computer for low computing operations, it has a dual band LAN, faster Ethernet, Bluetooth, it also has USB and HDMI ports for connecting devices. This device can be used as a server which we are doing in this project.
- **Micro SD card:** You will need a minimum of 8 gigabytes SD card for this project, this SD card is used as the ROM of the raspberry Pi.
- **Display:** You can use any kind of display for the project, like monitors, TV or any size that fits your requirement.
- **Mouse and keyboard:** You will need this to control and monitor the Wireless sensor Network.
- **Ethernet Switch:** The Ethernet switch is used to connect multiple devices through Local Area Network(LAN).
- **Power source:** Raspberry Pi needs a Power source of 5V and 2A, any power source can be used for the funtioning of the Pi.

Approach

1. Install the Raspbian OS in the SD card.
2. Update and upgrade the OS.
3. Download and install MPI software.
4. Download and install Fortron.
5. Create a Backup for this configured OS and install the OS in all the Raspberry Pi.

6. Change the IP adress of all the Raspberry Pi from dynamic to static.
7. Setup SSH(secure shell) to execute commands from the master Pi and also control the rest of the slave Pis.
8. Reset the server and make sure that all the nodes that is all te Pis are configured similarly.
9. Test your cluster.

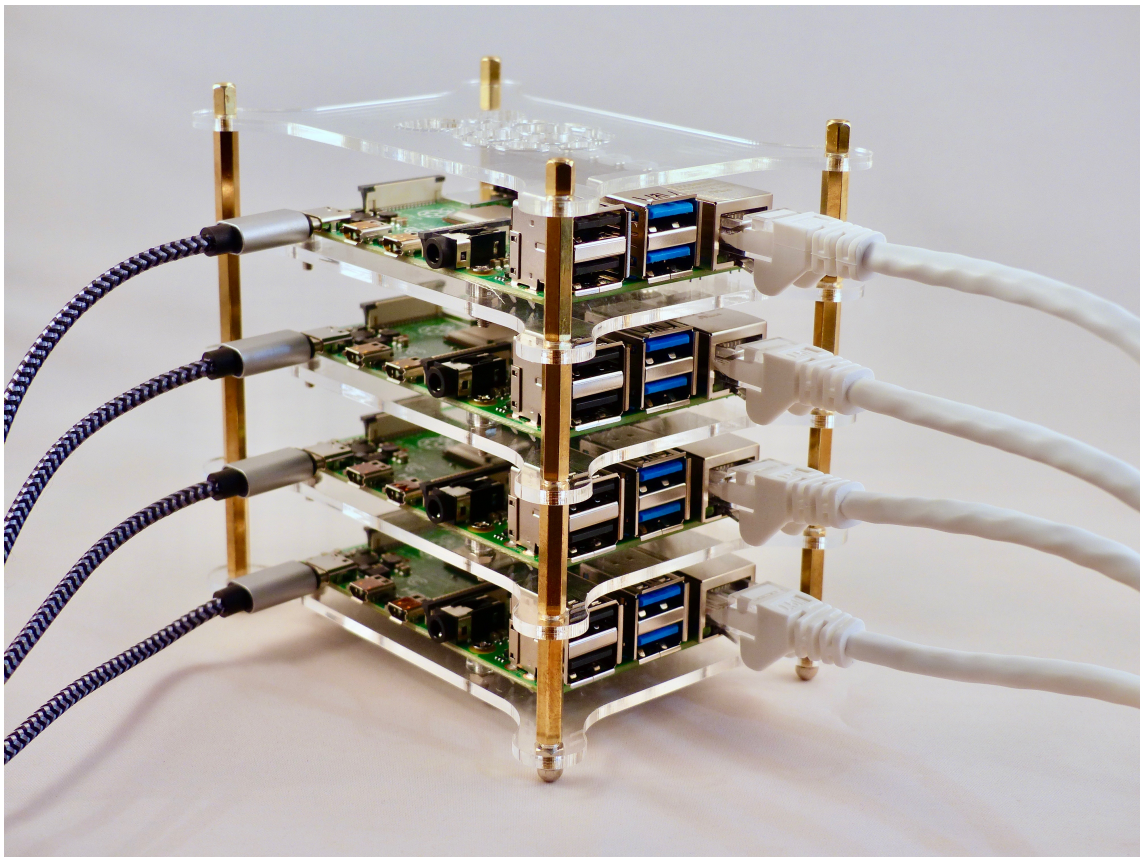

Figure 1: The cluster hardware