Input device:

1. **Voice assistant:** Google Home or Amazon Alexa. In this project we have used Amazon Alexa echo dot which converts the voice into a string. It takes command from user through natural language and send it to raspberry pi for processing.
2. **Mobile app:** The Voice assistant comes with an app from where we can configure the assistant. From the app we can customize various command and features. Also the app can be used as the alternative of voice assistant. It communicates with the raspberry pi similar like the voice assistant.
3. **Door sensor:** There is no specific door sensor so we have to make one using a reed switch and an ESP8266 Wi-Fi module. A reed switch is a switch which turns on/off by a magnetic field. When the door is closed the reed switch remains inside a magnetic field. As soon as the door is opened the reed switch change the state and sends an integer through esp8266 module. The module process the information and sends it to raspberry pi server through IP and port that Wi-Fi router allocate for the pi server. The pi server sends an alert signal to the app from where we can see whether the door is open or close.

Raspberry Pi server/HUB:

1. **Raspberry Pi 3 Model B+:** it is the latest product in the Raspberry Pi 3 lineup. From manufacture specification we can find that it has
2. Broadcom BCM2837B0, Cortex-A53 (ARMv8) 64-bit SoC @ 1.4GHz
3. 1GB LPDDR2 SDRAM
4. 2.4GHz and 5GHz IEEE 802.11.b/g/n/ac wireless LAN, Bluetooth 4.2, BLE
5. Gigabit Ethernet over USB 2.0 (maximum throughput 300 Mbps)
6. Extended 40-pin GPIO header (3.3V output)
7. Full-size HDMI
8. 4 USB 2.0 ports
9. CSI camera port for connecting a Raspberry Pi camera
10. DSI display port for connecting a Raspberry Pi touchscreen display
11. 4-pole stereo output and composite video port
12. Micro SD port for loading your operating system and storing data
13. 5V/2.5A DC power input
14. Power-over-Ethernet (PoE) support (requires separate PoE HAT).

Output Devices:

1. **Relay Module:** There are bunch of relay module available in the market but we are using 8 channel 12v relay module in this project. Using this module we can connect up to 8 outlets that we can control using voice assistant. All we need to connect the existing wall switches to the relay accordingly. After that we will name each relay with corresponding appliances or outlets (like bedroom light, living room TV). Then we will need to configure the relays in program. After all of these if we ask the voice assistant to turn on/off an outlet with corresponding name (like bedroom light, living room TV) the assistant process and send the data to raspberry pi server and the server will turn on the relay. As the relay is connected with the corresponding appliance so the appliance will turn on. The relay module has 8 input pin for 8 relays and 2 additional pin for connecting external power input. From the specification of the Raspberry Pi 3 model B+, the GPIO pins can output max 3.3v of voltage which is way low to turn on the relay. So we need an external source to step up the voltage.

Other:

1. 12v Power Adapter (External power supply for Relay module),
2. 5.5v Power Adapter,
3. 5v Rechargeable battery,
4. Jumper wires,
5. Bread Boards,
6. Male-Female connectors,
7. Plastic Board etc.