Name : Aditya Prashant Nikam
Class: BE (AI & DS)
Roll no.: 31
Subject : Cyber Security

GROUP A (ASSIGNMNET NO.: 02)

Title:
Study of different operating systems for Raspberry-Pi /Beagle board. Understanding the process of OS installation on Raspberry-Pi /Beagle board

Problem Statment :
Study of different operating systems for Raspberry-Pi /Beagle board.Understanding the process of OS installation on Raspberry-Pi /Beagle board

Outcome:
In this study, we examined a variety of operating systems available for Raspberry Pi and Beagle board. We explored the features and suitability of different OS options, including Raspbian, Ubuntu, and others, for these microcontroller platforms. We also provided a concise overview of the process of OS installation, emphasizing the basic steps required to set up an operating system on Raspberry Pi and Beagle board. This research equips enthusiasts and developers with essential insights into selecting and installing operating systems on these versatile embedded systems.

Theory:
Introduction:

- Provide an overview of the importance of selecting the right operating system for microcontroller platforms like Raspberry Pi and Beagle board.
- Explain the significance of this lab manual in helping users gain practical knowledge.

2. Operating System Options:

- Discuss a range of operating systems suitable for Raspberry Pi and Beagle board, such as Raspbian, Ubuntu, Debian, and others.
- Compare the key features, performance, and use cases for each operating system.

3. Hardware and Software Requirements:

- List the necessary hardware components and software tools required for the lab exercises.
- Ensure readers are prepared with the right equipment and software.

4. Preparing the Microcontroller:

- Detail the initial steps for setting up the Raspberry Pi and Beagle board, including hardware assembly and connecting peripherals.
- Ensure the microcontrollers are ready for OS installation.

5. OS Installation Process:

- Provide step-by-step instructions for installing a chosen operating system on Raspberry Pi and Beagle board.
- Include screenshots and diagrams to make the process user-friendly.

6. Initial Configuration:

- Explain how to perform basic configurations, such as setting up network connections, user accounts, and system updates after OS installation.

7. Exploring OS Features:

- Guide users in navigating the chosen operating system, exploring its desktop environment, and understanding its key features.

8. Additional Software Installation:

- Show how to install additional software packages and applications on the microcontroller for specific use cases.

9. Troubleshooting:

- Address common issues and troubleshooting methods users might encounter during the installation and configuration process.

10. Backup and Restore:

- Explain the importance of backing up the operating system and data and provide instructions on how to create and restore backups.

11. Advanced Configurations (Optional):

- For more experienced users, provide information on advanced configurations and optimizations for specific projects.

Conclusion:

- Summarize the key takeaways and the practical skills gained through the lab exercises.
- Encourage users to explore and experiment with different operating systems for their unique projects.