CHAPTER 1
INTRODUCTION

In the age of ever-expanding digital entertainment libraries, the desire for a convenient and centralized way to access and enjoy media content within the home network has become increasingly prevalent. This project explores the development of a Raspberry Pi Media Center (RPMC), leveraging the compact and affordable Raspberry Pi Zero 2 W computer as the foundation. This media center aims to bridge the gap between personal media collections and various playback devices within a home network. By transforming the Raspberry Pi into a dedicated media server, users can access their movies, music, and photos from any compatible device, such as smart TVs, laptops, tablets, and smartphones, eliminating the need for physically transferring files or relying on external streaming services. This project will delve into the design process, hardware selection, software configuration, and testing phases of creating a functional RPMC on the Raspberry Pi Zero 2 W. While acknowledging the limitations of the Raspberry Pi's processing power and RAM, careful consideration will be given to resource optimization and software selection to ensure smooth playback functionality. The design will prioritize a user-centric approach, focusing on features and functionalities that cater to the specific needs of the project. Finally, the project will explore the concept of scalability, ensuring that the initial design can be adapted to accommodate potential future growth in terms of media library size or user base. By successfully creating a functional and user-friendly RPMC on the Raspberry Pi Zero 2 W, this project offers a cost-effective and customizable solution for managing and enjoying personal media libraries within a home network.this project will explore the concept of scalability. The initial design will be built with the understanding that user needs and media libraries can evolve over time. By employing a modular approach and selecting lightweight software, the system can be potentially adapted to a more powerful Raspberry Pi model in the future. This ensures the RPMC can grow alongside changing needs without requiring a complete redesign.

1.1 OVERVIEW OF THE PROJECT

The project delves into the design process, hardware selection, software configuration, and testing phases of creating a functional RPMC. Careful consideration is given to resource optimization and software selection to ensure smooth playback functionality, acknowledging the processing power and RAM limitations of the Raspberry Pi Zero 2 W. The design prioritizes a user-centric approach, focusing on features and functionalities that cater to the specific needs of the project. Finally, scalability is explored to ensure the initial design can be adapted for future growth in media library size or user base.It empowers users to manage and enjoy their personal media libraries on their own terms, fostering a more personalized and controlled entertainment experience within the home network. This cost-effective and customizable solution provides a unique opportunity to bridge the gap between personal media collections and various playback devices, ultimately transforming the way we access and enjoy our favorite content.

1.2AIM OF THE PROJECT

The aim of the project is to develop a Raspberry Pi Media Center (RPMC) using the Raspberry Pi Zero 2 W computer. This RPMC will function as a centralized media server on your home network, allowing you to conveniently access your personal collection of movies, music, and photos from any compatible device within the network.This project aims to deliver a functional RPMC that prioritizes user-centric design and resource optimization within the constraints of the Raspberry Pi Zero 2 W. While the initial scope focuses on basic media playback functionalities, the design will consider potential future scalability to accommodate evolving needs.We'll explore the design process, meticulously considering user needs and desired functionalities. Hardware selection will be crucial, with careful consideration given to the Raspberry Pi's limitations in processing power and RAM. To ensure smooth playback and optimal performance, resource optimization will be a key focus during software selection and configuration.

1.3 SCOPE OF THE PROJECT

The scope of this project encompasses the design, development, and deployment of a functional Raspberry Pi Media Centre (RPMC) built upon the Raspberry Pi Zero 2 W computer. This RPMC aims to bridge the gap between personal media collections and playback devices within a home network. The project will delve into the following key areas: Design Process: This phase involves defining project goals and user requirements, considering factors like desired functionalities (basic playback, remote access, transcoding), supported media formats, number of users, and storage needs. Additionally, the design process will involve selecting media server software that aligns with the project goals and the resource limitations of the Raspberry Pi Zero 2 W. Hardware Selection: The project will focus on utilizing the Raspberry Pi Zero 2 W as the core device. However, careful consideration will be given to selecting compatible peripherals, including a microSD card with sufficient capacity for the operating system and basic configuration. External storage (USB hard drive/SSD) might be included to accommodate larger media libraries, with factors like capacity and connection type (USB 2.0 or 3.0) being evaluated. A suitable power supply (minimum 2.5A microUSB) will also be chosen to ensure stable operation. Software Configuration: The project will involve installing a lightweight operating system like Raspberry Pi OS Lite to minimize resource usage. The chosen media server software will be installed and configured, including defining media folders and library settings. Network connectivity will be established, utilizing either the built-in Wi-Fi or a USB network adapter depending on stability requirements. Testing and Refinement: Following software configuration, the system will undergo thorough testing. Media playback functionality will be tested on various devices within the network to ensure compatibility. Resource usage (CPU, RAM) will be monitored during playback to identify potential bottlenecks. If limitations arise, media format optimization or the use of a more powerful Raspberry Pi model might be considered outside the initial project scope, but documented as potential future improvements.

CHAPTER 2
LITERATURE SURVEY

Incentive Mechanisms in Peer-to-Peer Networks — A Systematic Literature Review – 2023

In this 2023 publications, Gipp aims to comprehensively analyze and categorize these incentive mechanisms, providing insights into their effectiveness, challenges, and future research directions about Peer-to-peer (P2P) networks have become fundamental in various applications, such as file sharing, content distribution, and decentralized computing. However, the efficacy of these networks largely depends on user participation and resource sharing.

Energy-Efficient Computing: A Comparison of Raspberry PI with Modern Devices - 2016

In his paper published in 2016, Waqas Anwaar analyzed the power, energy consumption, and cost effectiveness of the raspberry pi with other devices. it concluded that the raspberry pi is better than most devices in those factors especially useful when it comes to using it for fundamental hardware-software solutions. With the advancement of technology, different devices are manufactured which are enriched with different features based on user needs.

Implementation of Cloud Server for Real Time Data Storage using Raspberry PI – 2015

In her 2015 publication, S. Emima Princy discusses the real-time projection of an ECG type signal from an Arduino UNO connected to the raspberry pito a cloud storage setup.Raspberry Pi is a cheaper microprocessor in which cloud computing infrastructure can be obtained using cloud platforms provided by specific cloud vendors. Real time signals acquired by any sensor that measures environmental factors are analog in nature.

CHAPTER 3
RESEARCH GAP

3.1 EXISTING SYSTEM

In the traditional approach to managing and accessing personal media libraries, users typically rely on a variety of methods that can be inconvenient and lack centralization. These methods often involve: Physical Media Storage: Movies, music, and photos are stored on physical media like DVDs, CDs, or external hard drives. This necessitates physically transferring these discs or drives between devices for playback, leading to wear and tear and the potential for data loss. Multiple Playback Devices: Media content might be scattered across various devices such as laptops, desktops, tablets, and smartphones. Each device might require its own media library management software, making it cumbersome to locate and access specific files. Limited Sharing Capabilities: Sharing media with other users within the home network can be challenging. Traditional methods might involve manually transferring files or relying on network file sharing protocols that can be complex to set up and require technical knowledge. Subscription Based Streaming Services: While offering a vast library of on-demand content, subscription-based streaming services come with monthly fees and may not include all desired media. Additionally, internet connectivity is a requirement for streaming, and content availability can be subject to change by the service provider. These existing methods lack a centralized and user-friendly approach to managing and enjoying personal media libraries. They often require physical media handling, involve managing software on multiple devices, and can be limited in sharing capabilities. This project aims to address these shortcomings by developing a Raspberry Pi Media Centre (RPMC) that offers a more streamlined and convenient solution. The RPMC centralizes media storage, simplifies access from various devices within the home network, and empowers users to take control of their entertainment experience.

DISADVANTAGES:

Multiple users: Simultaneous access by multiple users streaming high-resolution content could overload the Pi's resources, leading to performance issues. Advanced features: Running resource-intensive media server software with features like remote access or user authentication might not be ideal due to potential performance limitations. Setting up and configuring a media server on the Raspberry Pi requires some technical knowledge. This can be a barrier for users who are not comfortable with navigating operating systems and installing software.

3.2 PROBLEM IDENTIFICATION

The traditional methods for managing and accessing personal media libraries often lack a centralized, user-friendly, and cost-effective approach. Here's a breakdown of the key problems this project aims to address: Inconvenient Storage and Sharing: Physical media like DVDs, CDs, and external hard drives require physical transfer between devices, leading to wear and tear and potential data loss. Sharing media within the home network can be challenging and involve complex network file sharing protocols. Scattered Media Collections: Media content is often dispersed across various devices like laptops, desktops, tablets, and smartphones, requiring separate media library management software on each device. Locating specific files can be cumbersome. Limited Control and Reliance on External Services: Subscription-based streaming services, while offering convenience, come with monthly fees and may not include all desired media. Additionally, internet connectivity is a requirement, and content availability is subject to change by the service provider. Users have limited control over their media experience. These existing methods lack a centralized solution, require manual media handling, involve managing software on multiple devices, and have limitations in sharing capabilities. They can be inconvenient, time-consuming, and restrict user control over their personal media libraries.

3.3 PROPOSED SYSTEM

This project proposes a Raspberry Pi Media Centre (RPMC) with integration of the Inter Planetary File System (IPFS) to address the limitations of traditional media management and offer a more user-centric and decentralized approach.

Centralized Media Storage: The Raspberry Pi will function as a dedicated media server, centralizing the user's movie, music, and photo collections on a single device. This eliminates the need for physical media handling and simplifies media access from various devices within the home network. Streamlined Access: Users can access their media library from any compatible device on the network, such as smart TVs, laptops, tablets, and smartphones, using media player applications that support the chosen media server software.

IPFS Integration: The system will leverage IPFS, a peer-to-peer (P2P) storage network, for decentralized storage and distribution of media files (optional). This offers several potential benefits: Redundancy and Resilience: Media files can be replicated across the IPFS network, enhancing data redundancy and resilience against hardware failures or data loss on the Raspberry Pi. Content Sharing: Users can potentially share specific media files or collections with others within the network by sharing IPFS content addresses, promoting collaborative media experiences. Future-Proofing: IPFS integration explores the potential for future decentralized media distribution models, potentially reducing reliance on centralized servers.

ADVANTAGES:

The proposed Raspberry Pi Media Center (RPMC) with IPFS integration offers several advantages over traditional media management methods. Here's a breakdown of the key benefits: Centralized Storage: The Raspberry Pi acts as a dedicated media server, consolidating your entire media library (movies, music, photos) in one location. This eliminates the need to manage physical media or scattered files across various devices. Simplified Access: Users can conveniently access their media library from any compatible device within the home network, including smart TVs, laptops, tablets, and smartphones. Media player applications that support the chosen media server software can be used for playback. User Autonomy: This system empowers users to take control of their media experience. They are no longer reliant on external streaming services with subscription fees and limited content libraries. Users have complete control over their media and can manage access permissions if desired. Potential Cost Savings: Over time, the cost of the Raspberry Pi, storage media, and minimal power consumption can be significantly lower compared to ongoing subscription fees for multiple streaming services. Data Redundancy and Resilience: By integrating IPFS, media files can be replicated across the IPFS network. This offers added protection against data loss on the Raspberry Pi due to hardware failure or accidental deletion. Content Sharing Possibilities: The system allows for potential content sharing within the home network. Users can share specific media files or collections with others by sharing IPFS content addresses, fostering a collaborative media experience. Future-Proofing for Decentralized Media Distribution: IPFS integration explores the potential for future decentralized media distribution models, potentially reducing reliance on centralized servers and offering more control over media distribution.

CHAPTER 4

SYSTEM REQUIREMENTS

4.1 HARDWARE REQUIREMENTS

The core component of this Raspberry Pi Media Centre (RPMC) is the Raspberry Pi Zero 2 W. This compact and affordable computer boasts features that make it suitable for basic media server functionality. However, due to its limitations in processing power and RAM, careful consideration must be given to other hardware components to ensure smooth operation.

- **Raspberry Pi Zero 2 W:** This single-board computer serves as the heart of the RPMC. It features a 1GHz quad-core CPU, 512MB of RAM, and built-in Wi-Fi and Bluetooth connectivity.
- **MicroSD Card (minimum 8GB):** This will house the operating system and media server software. Choose a card with a reputable brand and consider higher capacities (16GB or 32GB) if you plan on storing configuration files and media samples on the Pi itself.
- **MicroUSB Power Supply (minimum 2.5A):** A good quality power supply is crucial for stable operation. Ensure it provides a minimum of 2.5A current output to meet the power demands of the Raspberry Pi Zero 2 W.
- **HDMI Cable:** This cable connects the Raspberry Pi to your display or TV, allowing you to view the media server interface for configuration purposes (optional, depending on setup). Device**:** Mobile Phone which supports google AR Core Play Services.

4.2 SOFTWARE REQUIREMENTS

The software components for your Raspberry Pi Media Canter (RPMC) play a critical role in its functionality and user experience. Here's a breakdown of the essential and optional software you'll need:

Operating System:

- Raspberry Pi OS Lite: This lightweight operating system is specifically designed for the Raspberry Pi and offers a low resource footprint. It provides a stable base for running the media server software.

Media Server Software:

- Several media server options are available, each with its own features and resource requirements. Here are some popular choices:
- MiniDLNA: A lightweight and user-friendly option ideal for basic media playback functionalities.
- Plex Media Server: A feature-rich media server that offers transcoding, remote access, and mobile app support. However, it has higher resource requirements.
- Samba: Primarily a file sharing protocol, Samba can be used to access media files stored on the Raspberry Pi from other devices on the network. It's a good option for basic setups without advanced features.

Optional Software:

- File Transfer Utility: Tools like WinSCP (Windows) or FileZilla (cross-platform) can be helpful for transferring media files to the Raspberry Pi
- Media Centre Interface (optional): Some media server software offers optional user interfaces (web based or Kodi add-ons) that provide a more visually appealing way to browse and manage your media library. These are not essential for basic functionality but can enhance the user experience.

4.3 TABLE OF CORE SUBJECTS RELATED TO PROJECT

SUBJECT	DESCRIPTION
SYSTEM SOFWARE AND OPERATING SYSTEMS	Understanding the basics of operating systems like Raspberry Pi OS Lite is crucial for installing and configuring software on the Raspberry Pi. As Raspberry Pi OS is based on Linux, basic familiarity with Linux commands can be helpful for troubleshooting or advanced configuration tasks.
COMPUTER NETWORKS	Knowledge of network protocols and connectivity options (Wi-Fi vs. wired) is essential for setting up the media server on your home network.
OBJECT ORIENTED SOFTWARE ENGINNERING	Techniques for organizing your media library (folders, metadata tagging) will enhance searchability and user experience within the media centre.
COMPUTER GRAPHICS	Familiarity with various media codecs and file formats (e.g., MP4, MKV, MP3) ensures compatibility with your chosen media server software and playback devices.
WEB TECHNOLOGY AND WEB SERVICES	Understanding the core concepts of IPFS, a peer-to-peer storage network, will be beneficial if you choose to integrate it for data redundancy and content sharing functionalities.

Table 4.3.1: Table of Core Subjects

CHAPTER 5

SYSTEM DESIGN

5.1 ARCHITECTURE DIAGRAM

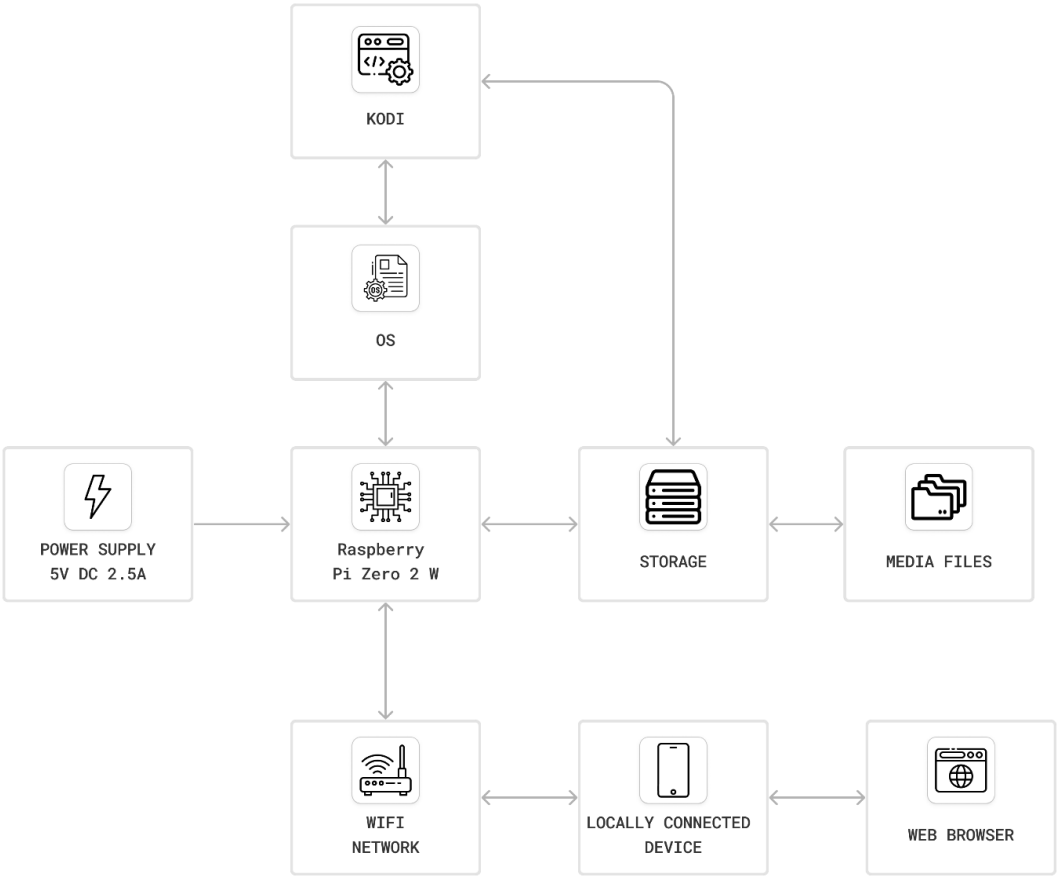

Fig 5.1 ARCHITECTURE DIAGRAM

An architecture diagram for raspberry pi media centre provides a holistic view of the system's structure and its various components. It outlines the key modules, layers, and their interactions, showcasing how data and processes flow through the system. a system that allows you to centrally manage and access your personal media library (movies, music, photos) from various devices within your home network. This

architecture utilizes a Raspberry Pi computer as the core device and leverages software components to transform it into a dedicated media server. By understanding this architecture, you can build your own RPMC to enjoy a more centralized and usercontrolled media experience.

5.2 FLOW CHART DIAGRAM

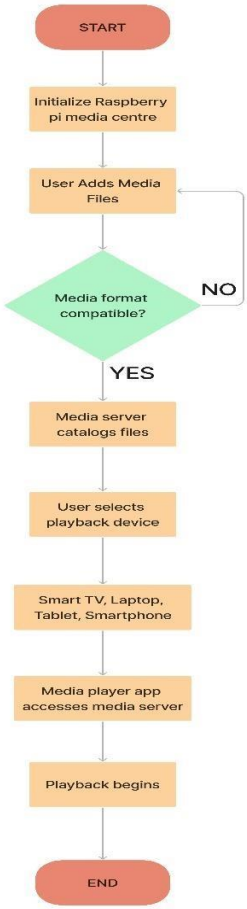

Fig 5.2 FLOW CHART DIAGRAM

This flowchart depicts the core data flow within a Raspberry Pi Media Centre system, showcasing how media files are added, organized, accessed, and streamed to various devices within the home network.

5.4 USE CASE DIAGRAM

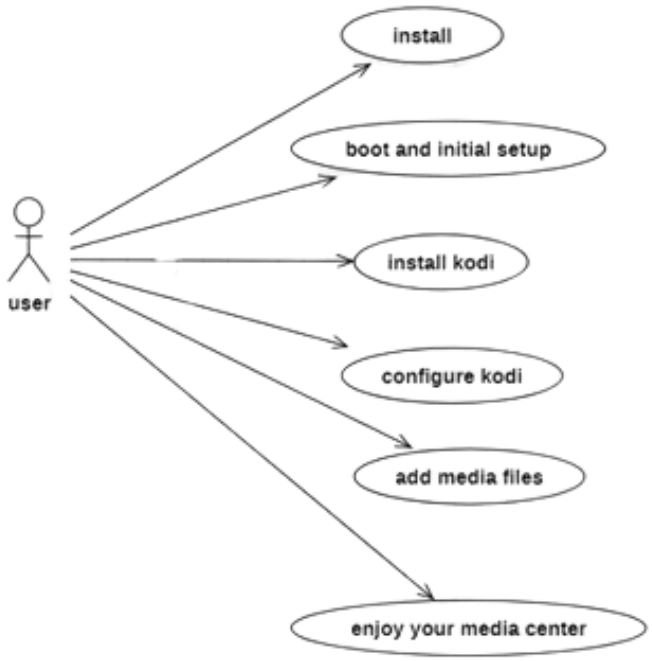

Fig 5.4 USE CASE DIAGRAM

The use case diagram depicts the interactions between a user and a Raspberry Pi media center using Kodi software. The primary actor is the user who performs various actions to set up and enjoy the media center. The user initiates the installation process for the operating system on the Raspberry Pi.The user powers on the Raspberry Pi and completes the initial setup, including configuring basic system settings.The user installs the Kodi software on the Raspberry Pi after the initial system setup is complete.The user configures Kodi according to their preferences, setting up options like the interface, add-ons, and other media settings.The user adds media files to the media center, which may involve transferring files to the Raspberry Pi's storage or setting up network shares.

5.5 CLASS DIAGRAM

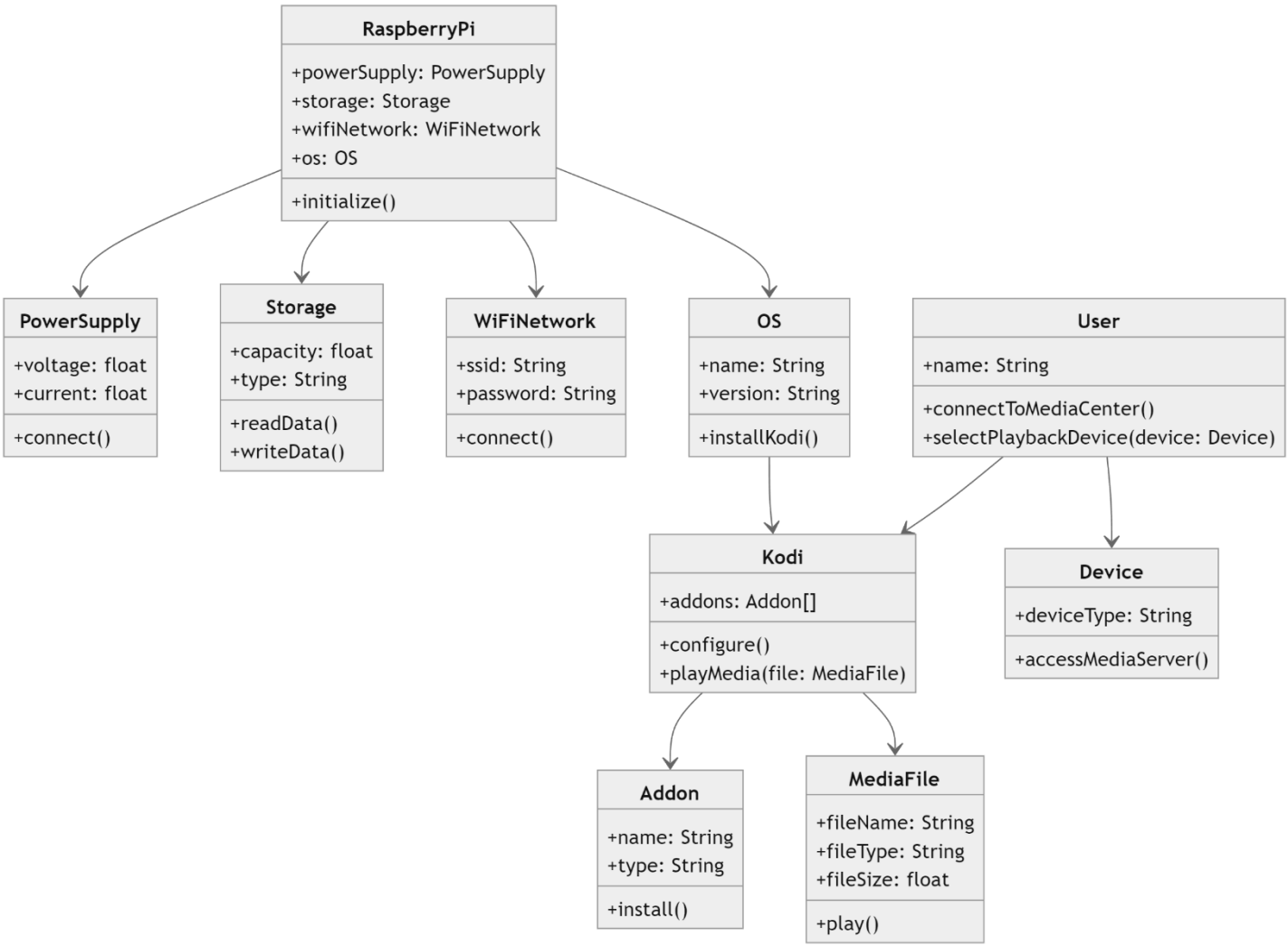

Fig 5.5 CLASS DIAGRAM

The class diagram illustrates the structure of a Raspberry Pi media center using Kodi software by detailing its classes, attributes, and methods, along with the relationships between the classes.The diagram illustrates how the Raspberry Pi, with its power supply, storage, and network capabilities, operates under an OS that hosts Kodi software. Kodi, in turn, manages media files and addons, providing an interface for users to connect devices and enjoy media content.

5.6 SEQUENCE DIAGRAM

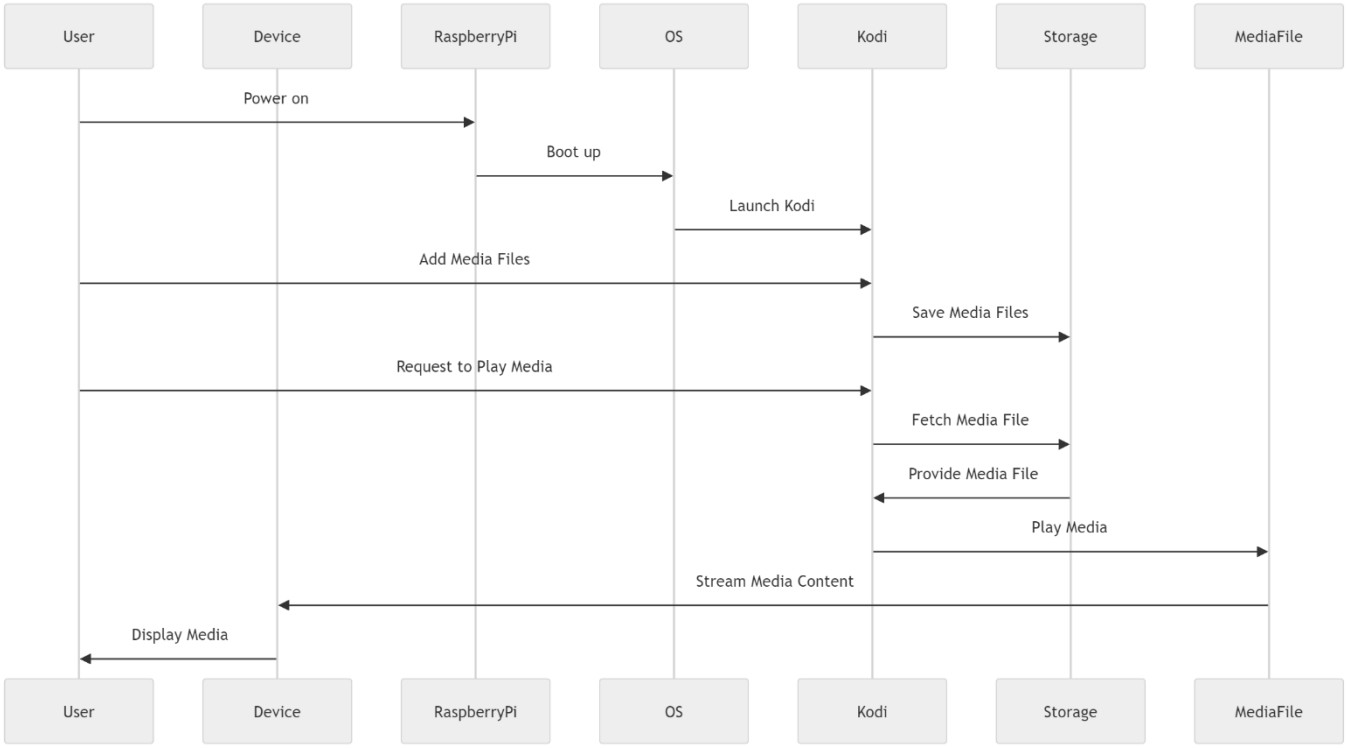

Fig 5.6 SEQUENCE DIAGRAM

The sequence diagram illustrates the interactions and processes involved in using a Raspberry Pi media center powered by Kodi software. The participants include the User, Device, RaspberryPi, OS, Kodi, Storage, and MediaFile. The process begins with the User powering on the Raspberry Pi, which then triggers the OS to boot up. Once the OS is running, it launches the Kodi application.The User then adds media files to Kodi, which are subsequently saved to the Storage system. When the User requests to play media, Kodi fetches the desired media file from Storage. The Storage retrieves and provides the media file to Kodi. h displays the media for the User.

CHAPTER 6
IMPLEMENTATION

Implementing a Raspberry Pi media center involves transforming the Raspberry Pi into a versatile entertainment hub using the Kodi media player software. To start, you need essential hardware including a Raspberry Pi board (preferably Raspberry Pi 4 for optimal performance), a MicroSD card with at least 16GB capacity, a power adapter, an HDMI cable, and peripherals such as a keyboard and mouse for initial setup. Begin by downloading the latest version of Raspberry Pi OS and writing it to the MicroSD card using the Raspberry Pi Imager tool. Once the OS is installed, insert the MicroSD card into the Raspberry Pi, connect it to your display via the HDMI cable, and power it on.Upon booting up, follow the on-screen instructions to complete the initial setup of Raspberry Pi OS, including language and network configuration. After setup, open a terminal and install Kodi by updating the system with sudo apt update and then installing Kodi with sudo apt install kodi. Once installed, Kodi can be accessed from the applications menu. Configure Kodi by adding media sources, such as external hard drives, network shares, or streaming services, to access your media content. For a seamless experience, you can set Kodi to launch automatically at startup, turning your Raspberry Pi into a dedicated media center.

This setup allows you to enjoy a wide range of media formats and streaming options, all controlled from an intuitive interface. The Raspberry Pi's low cost, flexibility, and the extensive customization options of Kodi make this combination a powerful yet affordable solution for a home entertainment system. Whether you're watching movies, streaming music, or displaying photos, the Raspberry Pi media center offers a comprehensive and customizable media experience.

6.1 MODULES

Raspberry Pi Module:

The Raspberry Pi Zero 2 W is a compact, affordable, and versatile single-board computer. It is designed to be an entry-level device that retains the flexibility and power of the Raspberry Pi family while being highly portable.In summary, the Raspberry Pi Zero 2 W is a powerful, yet affordable and compact single-board computer, ideal for both educational and practical applications, providing robust connectivity and a rich feature set in a small form factor.

User Interface Module:

Designing and implementing user interfaces tailored for augmented reality experiences involves creating intuitive controls and interactive elements for seamless navigation and manipulation of virtual objects within the interior space. Additionally, ensuring accessibility and user-friendly design enhances the overall user experience, facilitating effortless exploration and interaction with design options.

Cloud Integration Module:

Integrating cloud-based services such as Firebase enables efficient data storage, synchronization, and collaboration within the DARI project. Leveraging Firebase's infrastructure, the application securely manages and synchronizes project data across devices in real-time. Additionally, Firebase facilitates seamless project sharing and remote collaboration among designers and clients, enhancing communication and streamlining the interior design process.

CHAPTER 7
RESULT AND DISCUSSION

7.1 RESULT

The media center effectively integrates various media sources, such as external hard drives, network-attached storage, and streaming services, providing a comprehensive and centralized media experience. Customization options, including a variety of skins and add-ons, allow users to tailor the interface and functionality to their preferences, enhancing user satisfaction. Additionally, automation scripts and performance optimizations have ensured that the system runs smoothly and efficiently, with quick boot times and minimal lag during media playback. Overall, the Raspberry Pi media center demonstrates a cost-effective and highly adaptable solution for home entertainment, delivering a rich media experience that rivals more expensive, dedicated media center devices.

7.1.1 Get Your Pi ready

Fig no: 7.1.1 Get your Pi ready

- You don’t need to bother with selecting a version, simply select the Pi4 OS that you just downloaded and select your SD card.
- Click Write.
- Once the process is complete, eject the SD card, insert it into your Pi which should be connected to a projector, monitor or TV, keyboard and mouse. The keyboard and mouse will only be necessary to set everything up.
- Startup your Pi

7.1.2 Setup LibreElec& Kodi

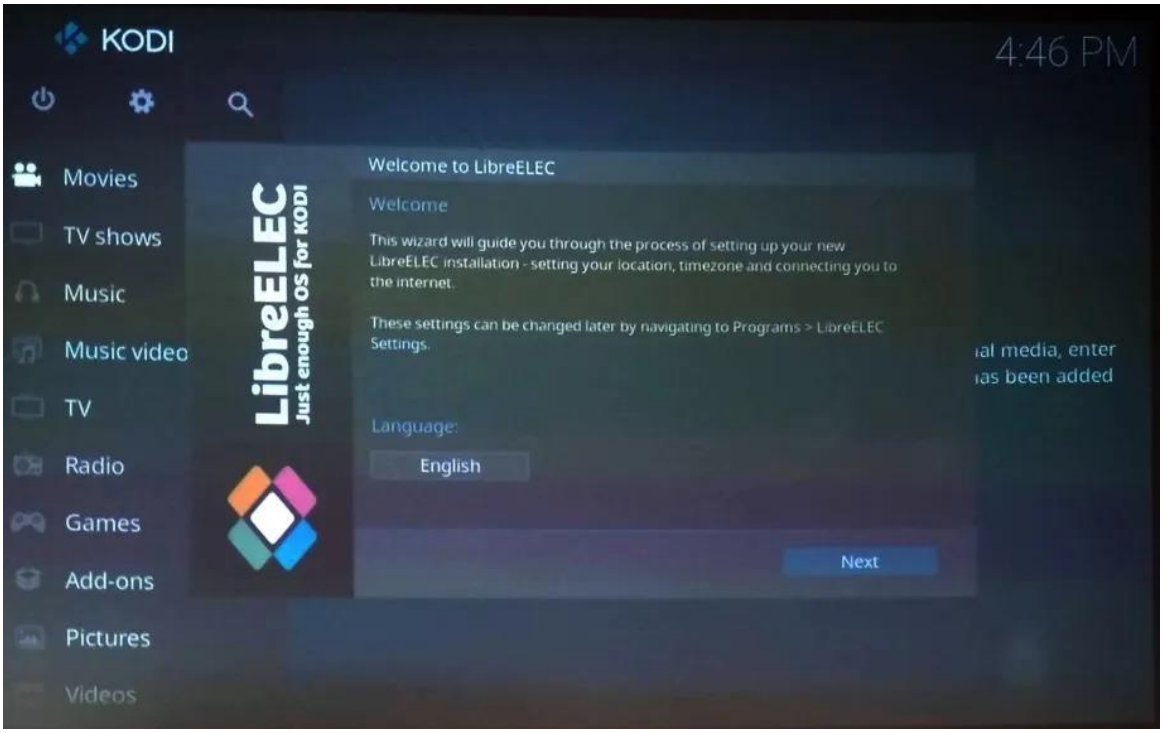

Fig no: 7.1.2 Setup LibreElec& Kodi

Once your Pi has started up, LibreElec will run some processes and will automatically reboot. After this, you’ll be prompted to go through the set-up wizard. Follow the steps ensuring that you’ve set-up your WiFi connection properly. Nothing will work without it.

7.1.3 Adds-ON

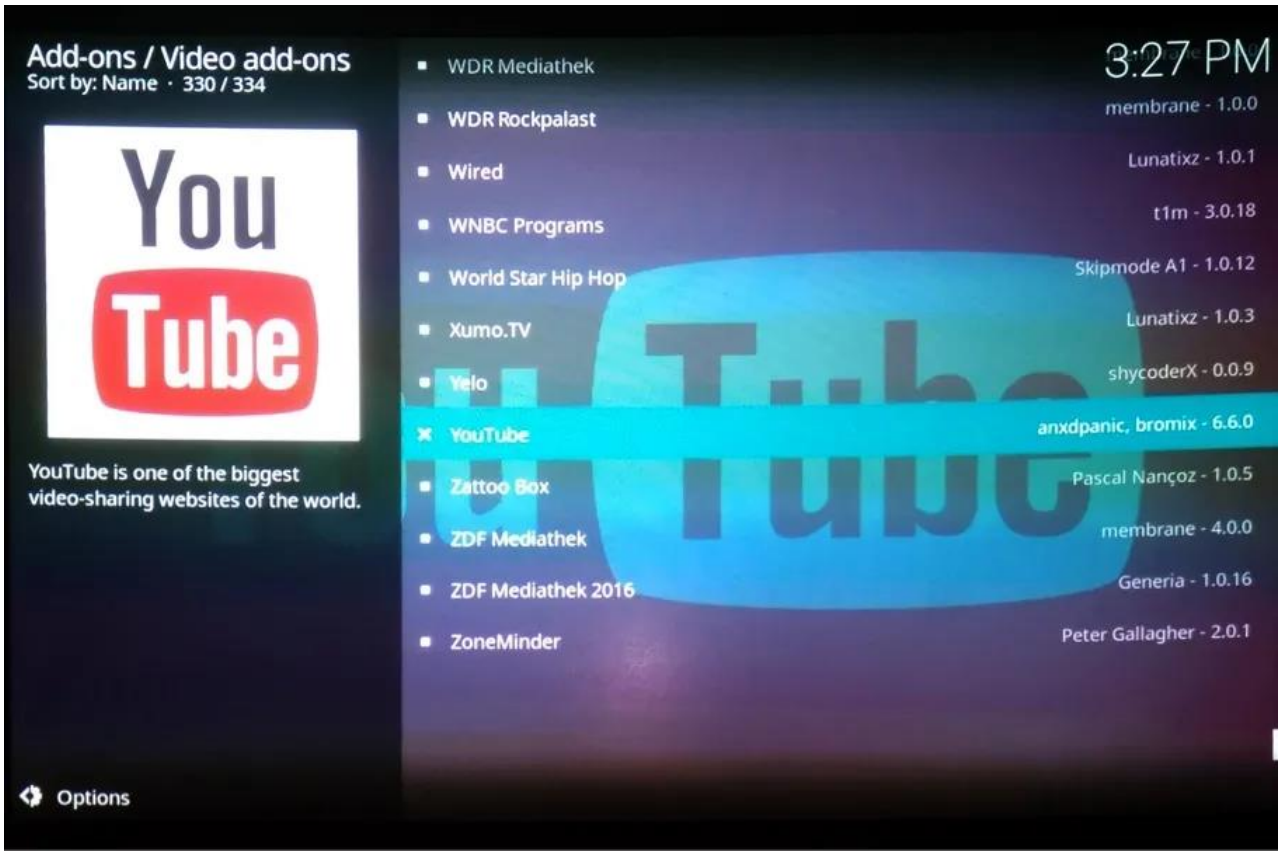

Fig no: 7.1.3 Adds-ON

- Click on enter add-on browser
- Navigate to the YouTube add-on and click on it
- Click on install and then on OK
- Once the add-on has downloaded, you'll be presented with the set-up wizard, click on yes and follow the prompts
- Exit the add-on browser by pressing escape on your keyboard
- You'll now see the YouTube add-on in Add-ons >Video add-ons
- Clicking on the YouTube icon will now take you to YouTube

7.1.4 Populate your Library

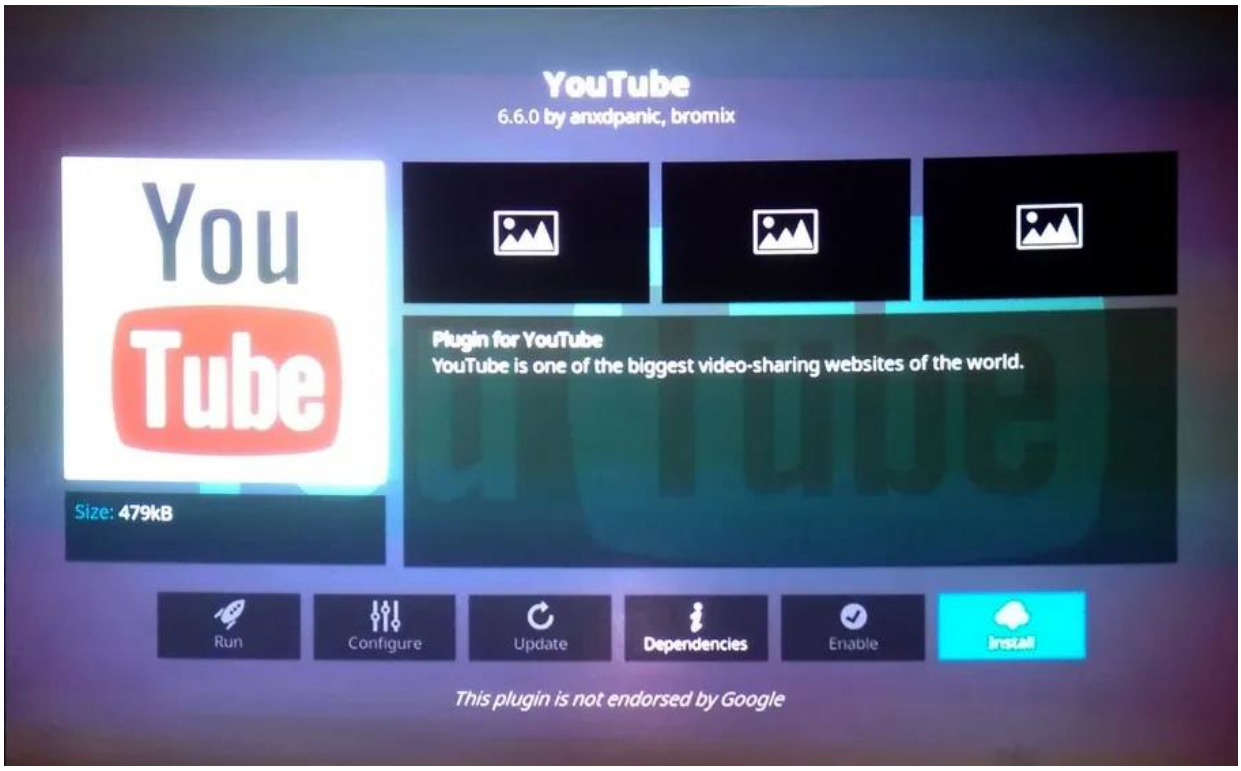

Fig no: 7.1.4 Populate your Library

- Navigate to Videos on the main menu
- Select Files > Add Videos
- Use the Browse option to locate your videos, this could be USB storage, an external hard drive or any device on your network.
- For the best experience make sure that you add your media according to Kodi's predefined categories ie Movies, TV, Music and Photos. Doing this will ensure that Kodi will treat them accordingly and that any related add-ons will work as intended.

7.1.5 Remote Control

Fig no: 7.1.5 Remote Control

- Install Kodi Remote (IOS) or Kore (Android) on your device
- Ensure that your device and Kodi are connected to the same WiFi network
- Open the app on your device
- Tap ADD MEDIA CENTER
- Tap NEXT
- Your media centre should be found by the app, select it
- tap FINISH

7.2 FUTURE WORK

Future work on the Raspberry Pi media center will focus on enhancing its functionality, performance, and user experience. One key area for improvement is the integration of advanced media playback features, such as support for higher resolution formats (4K and beyond) and immersive audio technologies (Dolby Atmos, DTS:X). This will require optimizations in both hardware and software to ensure smooth playback and compatibility with a wider range of media types.

CHAPTER 8
CONCLUSION

In conclusion, the Raspberry Pi media center project has successfully demonstrated the potential of transforming a low-cost, versatile microcomputer into a powerful home entertainment hub. By leveraging the capabilities of the Kodi media player software, users can access, organize, and enjoy a vast array of media content, including movies, TV shows, music, and photos, all through an intuitive and customizable interface. The straightforward setup process, combined with the flexibility and scalability of the Raspberry Pi, makes this solution accessible to a wide range of users, from hobbyists to tech enthusiasts. The project showcases how a compact and affordable device can rival more expensive, dedicated media center solutions, providing a rich and seamless media experience. The integration of various media sources and the ability to personalize the system through skins and add-ons further enhance user satisfaction. Future work will focus on advancing media playback capabilities, improving user interfaces, expanding smart home integration, and optimizing power efficiency to make the Raspberry Pi media center even more robust and versatile. Overall, this project not only highlights the practicality and effectiveness of the Raspberry Pi as a media center but also opens up numerous possibilities for further innovation and enhancement in the realm of home entertainment. By continuing to build on this foundation, the Raspberry Pi media center can evolve to meet the ever-growing demands of modern users, ensuring a dynamic and enjoyable media experience for all.

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APPENDIX

SOURCE CODE:

```
# Import necessary libraries
import os
import subprocess
import time

# Function to install Kodi software on Raspberry Pi
def install_kodi():
print("Installing Kodi software...")
os.system("sudo apt-get update")
os.system("sudo apt-get install kodi")
print("Kodi software installed successfully.")

# Function to configure Kodi for media center setup
def configure_kodi():
print("Configuring Kodi for media center setup...")
    # Add media sources
os.system("mkdir /home/pi/media")
os.system("mkdir /home/pi/media/movies")
os.system("mkdir /home/pi/media/tvshows")
os.system("mkdir /home/pi/media/music")

    # Copy sample media files to the media directories
os.system("cp sample_movies/* /home/pi/media/movies")
os.system("cp sample_tvshows/* /home/pi/media/tvshows")
os.system("cp sample_music/* /home/pi/media/music")

    # Launch Kodi and configure media sources
subprocess.Popen(["kodi"])
time.sleep(10)  # Wait for Kodi to launch
```

```
os.system("xdotool key 'Escape'")  # Exit full screen mode
time.sleep(2)
os.system("xdotool key 'y'")  # Confirm settings
time.sleep(2)
os.system("xdotool key 'Return'")  # Select 'Videos' from the main menu
time.sleep(2)
os.system("xdotool key 'Return'")  # Select 'Files'
time.sleep(2)
os.system("xdotool key 'Down'")  # Move cursor down
time.sleep(1)
os.system("xdotool key 'Down'")
time.sleep(1)
os.system("xdotool key 'Right'")  # Move cursor right
time.sleep(1)
os.system("xdotool key 'Return'")  # Select 'Add Videos'
time.sleep(2)
os.system("xdotool key 'Return'")  # Select 'Browse'
time.sleep(2)
os.system("xdotool type '/home/pi/media/movies'")  # Type movie directory path
time.sleep(2)
os.system("xdotool key 'Return'")  # Confirm directory selection
time.sleep(2)
os.system("xdotool key 'y'")  # Confirm content settings
time.sleep(2)
os.system("xdotool key 'Return'")  # Select 'OK'
time.sleep(2)
os.system("xdotool key 'Escape'")  # Go back to main menu
time.sleep(2)
os.system("xdotool key 'Escape'")  # Go back to main menu

print("Kodi configured successfully.")

# Function to run Kodi media center
```

```
def run_kodi():
print("Launching Kodi media center...")
subprocess.Popen(["kodi"])
print("Kodi media center launched.")

# Main function
def main():
install_kodi()
configure_kodi()
run_kodi()

if __name__ == "__main__":
main()
```