**INT 211**

**HUMAN COMPUTER INTERACTION**

ACADEMIC TASK REPORT

ON

TOPIC - PROBLEM CHARACTERISTICS
FOR
RETROEMU ( VIDEO GAME EMULATOR ANDROID APP )

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# 1. Statement of Interface Design Problem

The interface design problem is developing a design of a video game emulator as an android application.

A video game emulator is a type of emulator that allows a computing device to emulate a video game console's hardware and play its games on the emulating platform.

**Problem Statement :-**

The most problems faced in using a video game emulator design are :-

- No clear explanatory icons for related actions.
- Inability to save progress.
- Too many or too less functionalities.
- Cluttered Interface.
- Improper Help Section.

- Inability to understand advanced terms by beginners.
- Issues in adding a game.

  And so on.

Design of this application will cover the listed problem statement and allow us to keep in mind of the User Experience (UX) while using this app.

# 1.1 User Requirements

The users using this application range from teenagers to adults.

A user expects the application should :-

- Be able to emulate a wide variety of Consoles.
- Allow sound to be rendered.
- Not have choppy graphics.
- Be easy to understand.
- Have a virtual control pad.

- Have the ability to connect an external gamepad.
- Have the function of saving progress automatically.
- Have the function of changing FPS(Frames Per Second)
- Be able to load games offline as well as online.
- Use less memory.

- Have a proper help/information menu.

# 1.2 Goals

Few of the goals of RetroEmu video game emulator are :-

- Does the application emulate a wide variety of consoles?
- Does the application have online/offline access?
- Does the interface look clumsy or clean?

- Is is easy to learn how to use the application? Does
- the application support external attachments?
- Whether the application has a Profile or not?
- Does the App allow orientation change?

# 1.3 Tasks

- Run the Application

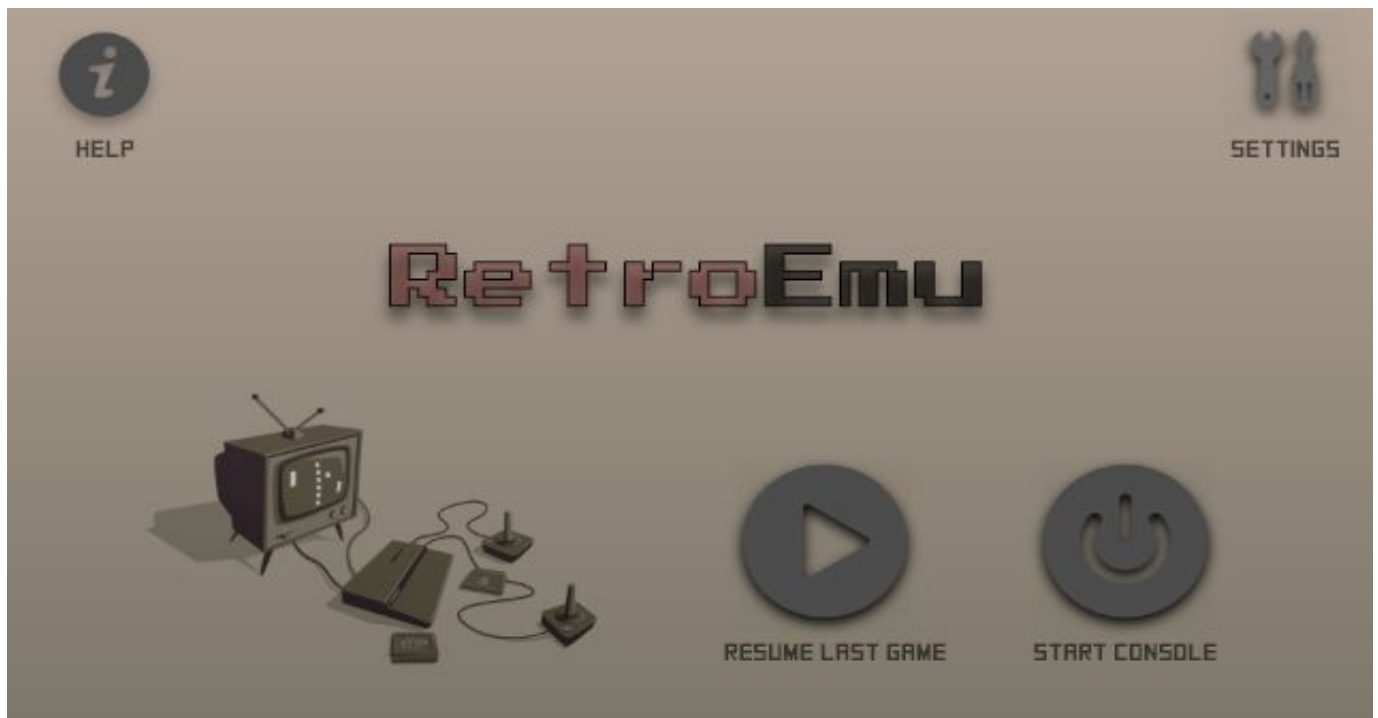  The first task of the user is to run the application from their device.
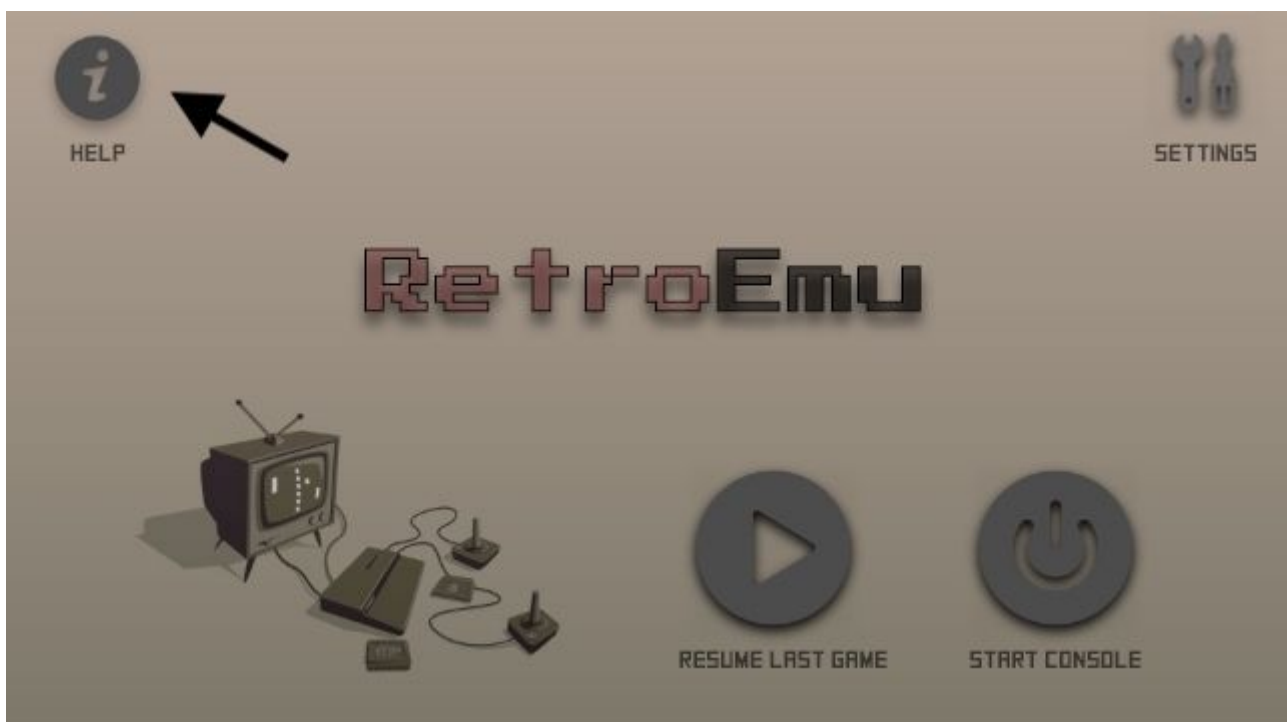
Resulting Screen :-
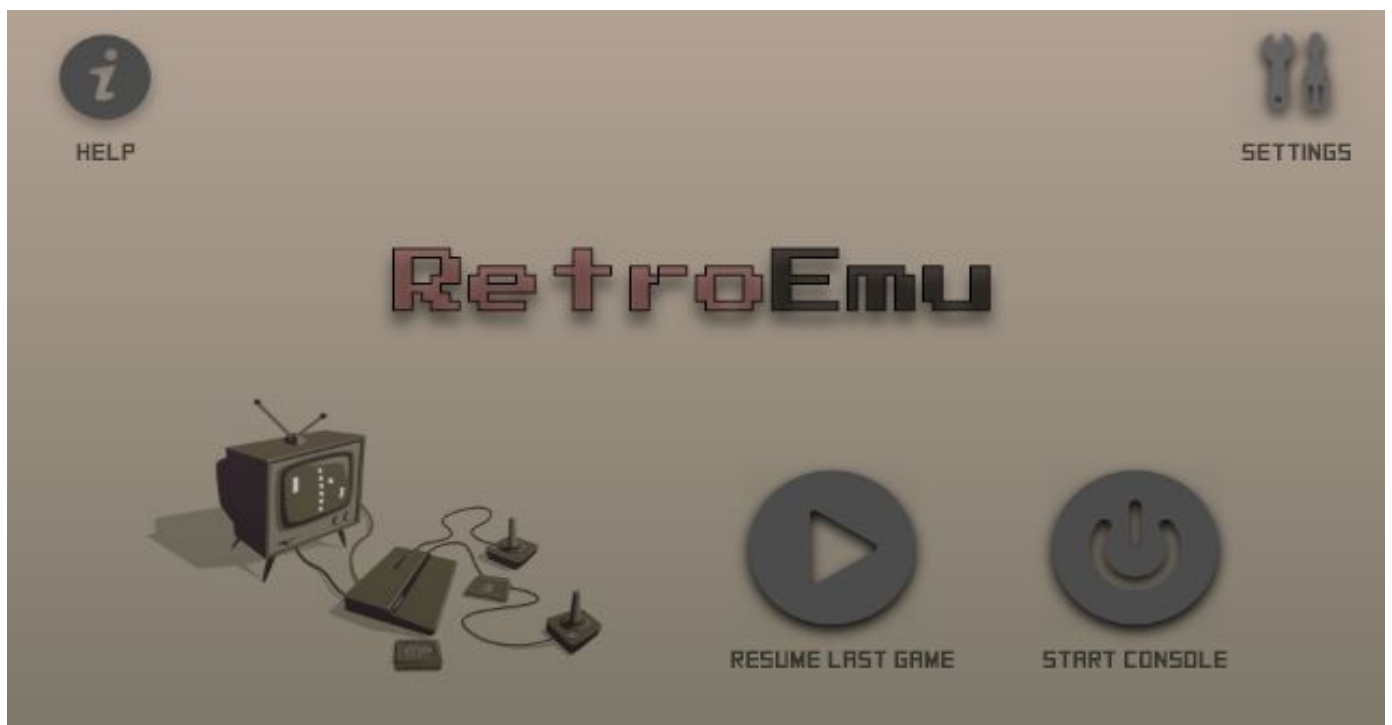
- Check the help section

  Check various help topics to get familiar with the application interface an prerequisites.
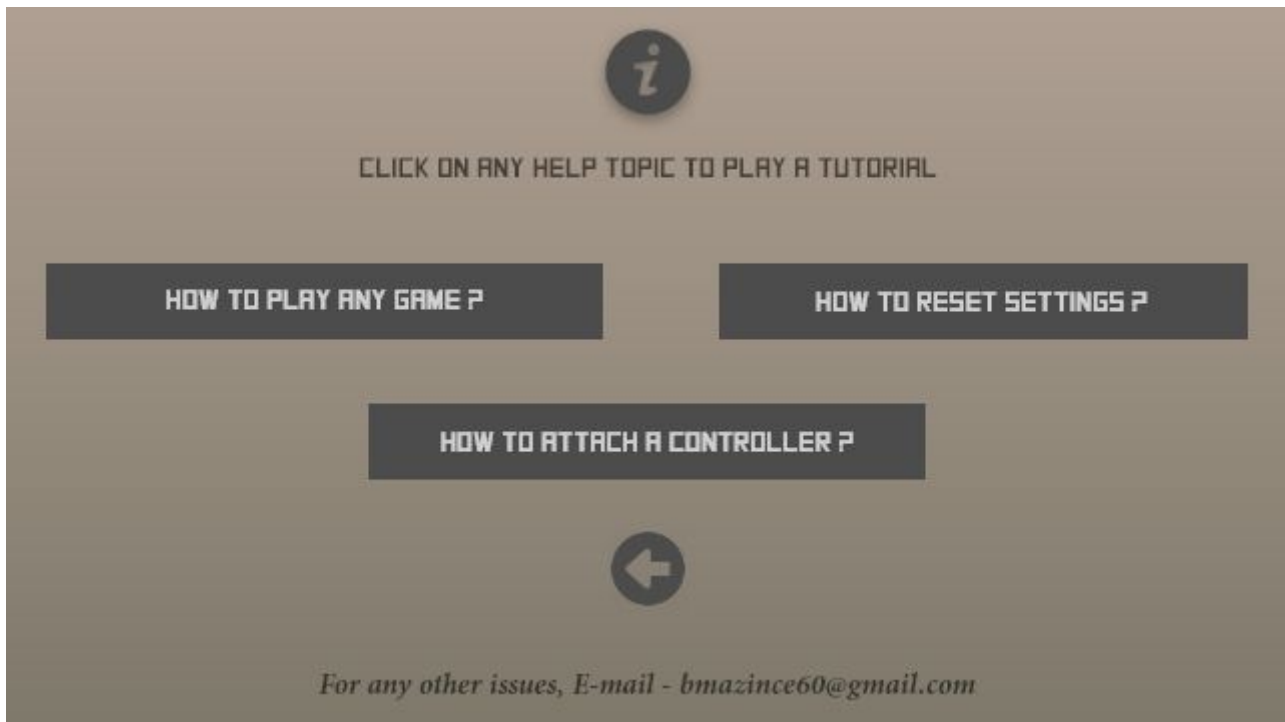
  Step 1- Run application.
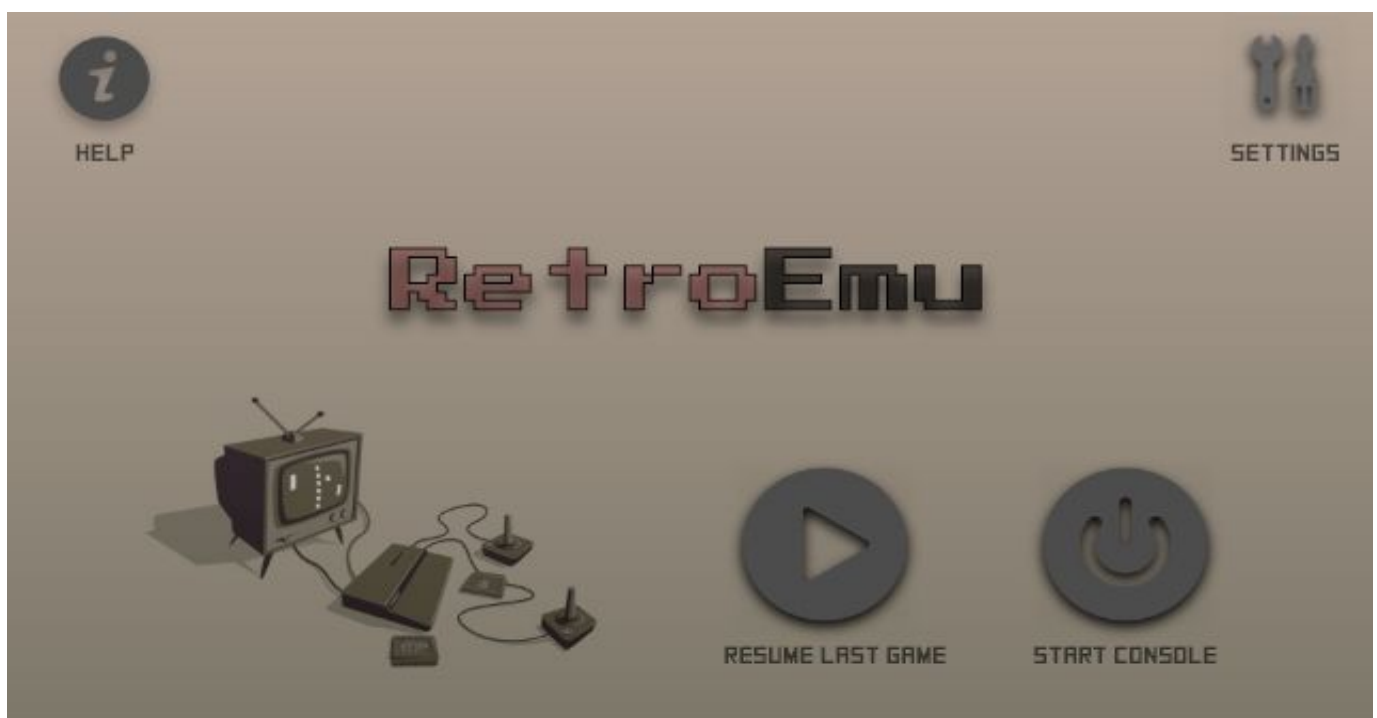


Step 2- Click Help Icon

Step 3 - Resulting Screen



- Check/Modify Settings

  The user may change settings or view the various configurations like Audio, FPS, autosave, orientation, connect external controller.

  Step 1- Run application.

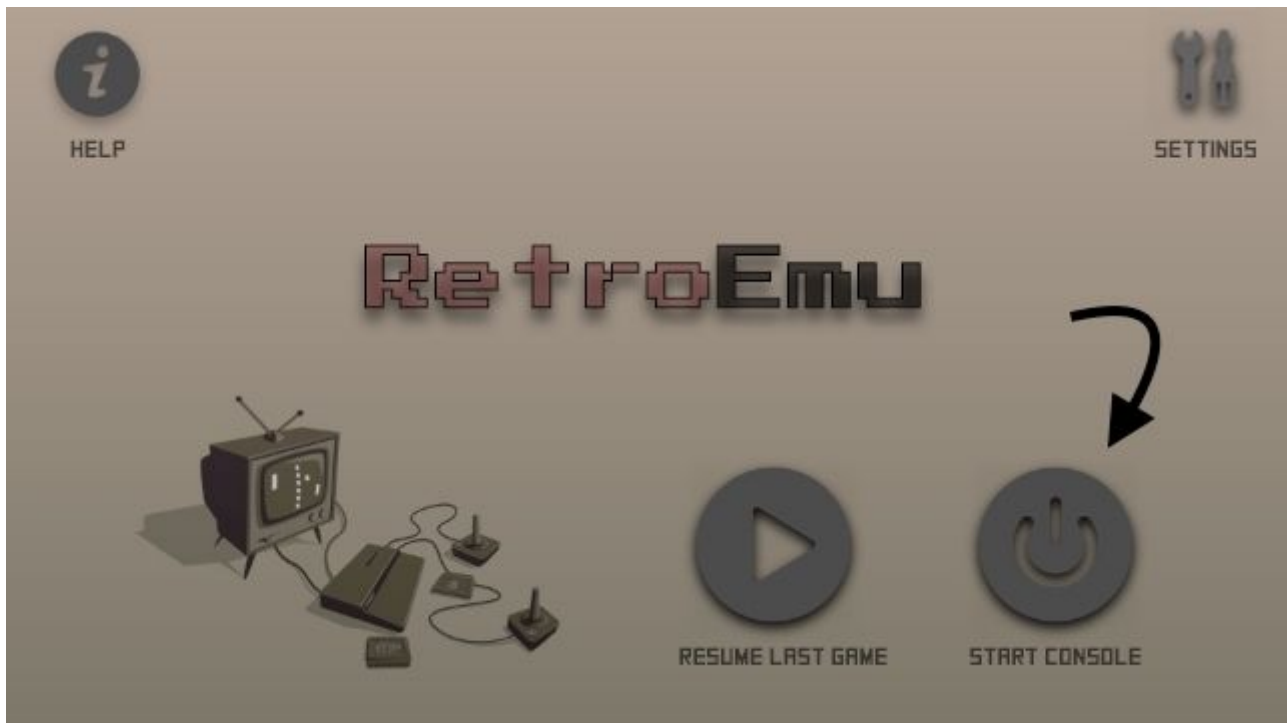## Step 2- Click on the Settings icon
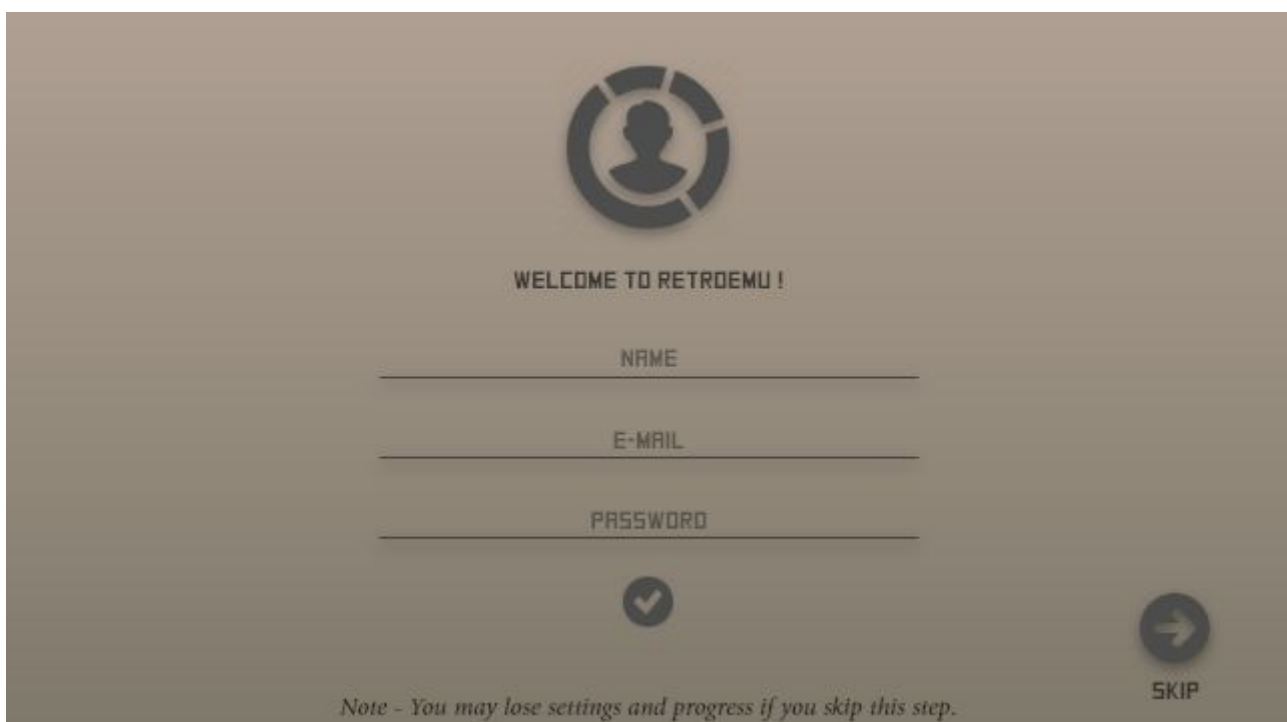


## Step 3 - Resulting Screen

- Power on the console

The user need to press the power button on the screen to start playing games.
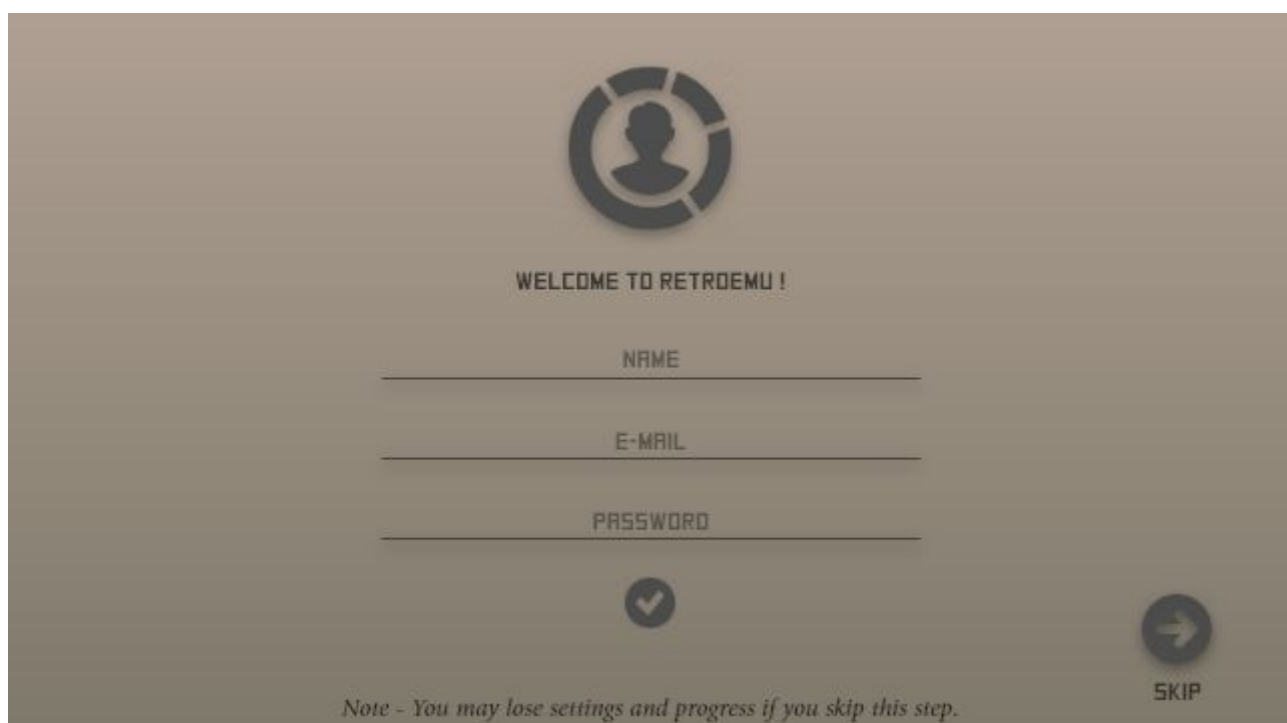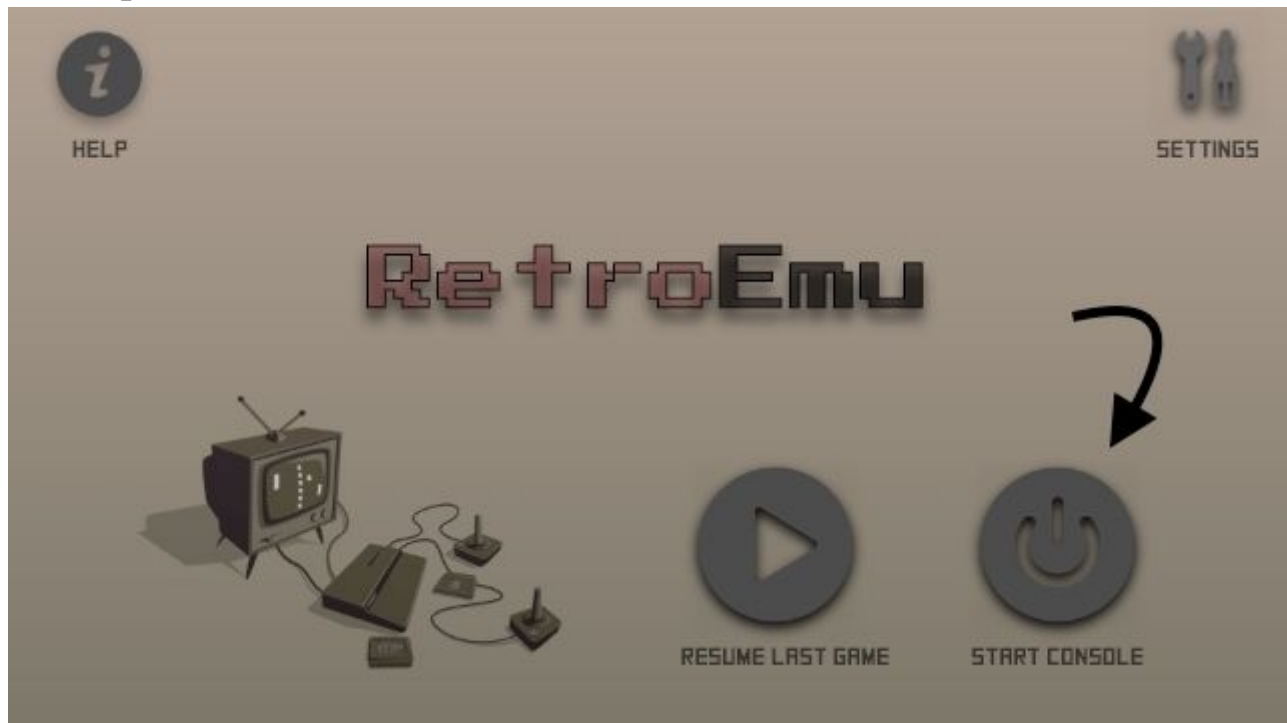
Step 1 - Click the Power Button



Result -

- Login

The user may login or skip this step, but may lose configurations.

Step 1- Power on console



Step 2- View Login Screen

Step 3- Enter Name, E-mail, Password. Or Skip

Result-



- Select console

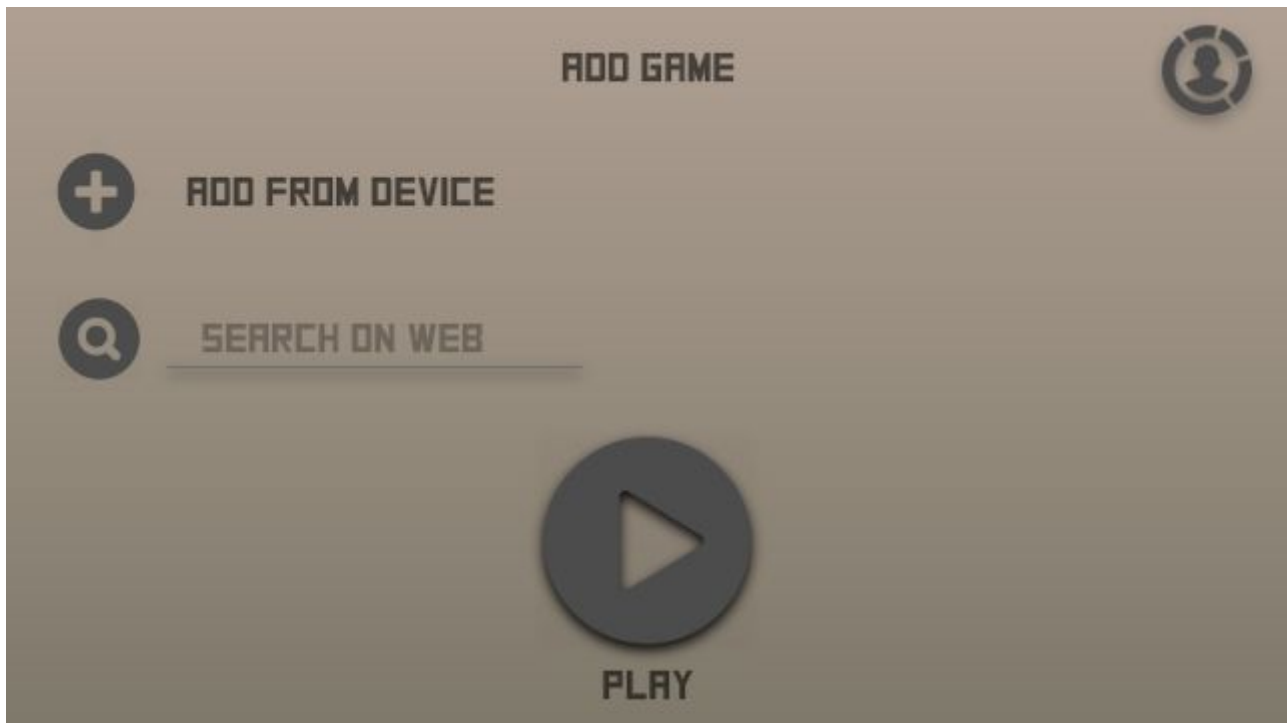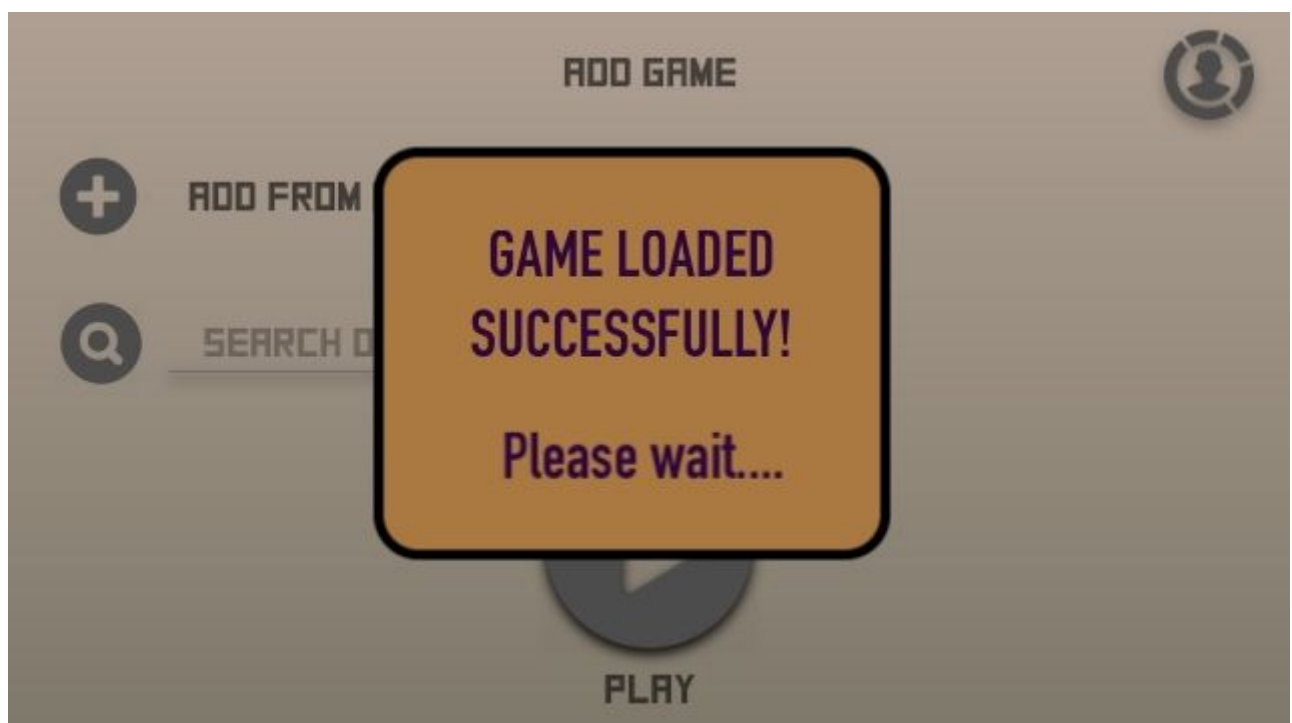  The user can select any console they would like to emulate from the given choices by clicking on any icon.

- Add Game

  The user can add the respective game for the console that is selected either from the local storage or search for the game online.



  Result -

- Play the game

After adding the game successfully, the user may click on the play button and wait for the game to start.

Step 1 -



Step 2-

# 1.4 Actions

The user can perform the following actions on RetroEmu video game emulator :-

- Access the help menu

  If the user faces any kind of issues in operating the app, he/she may look for help int the help menu subtopics for a detailed tutorial.

  The help menu may consist of topics like -

  - How to play any game?
  - Reset settings?
  - How to attach a game controller?

- View/Modify Settings

  The setting menu consists of the following options for the user's experience -

  - Turning audio off/on.

  - Changing the orientation between Portrait and
  - Landscape. Turn autosave on/off.
  - Connect Gamepad/Controller.
  - Go back to Main menu

- Resume last game

  This action allows the user to run the last recently played game without having to load the game again. It is found in the Home Screen.

- Access/Update Profile

- The user can access or update their profile after logging in.

- Add game from device

  This action allows the user to add a game from a local source file into the emulator

- Add game from web

  This action allows the user to search the game on the web and download it and load into the emulator.

- Play the game using on screen gamepad.

  The user can play the game on their android device after the game is loaded and running.
  The gamepad comes up automatically upon launch of the game.

- Save State

  This action allows the user to Save the current state of the game.

- Load State

  This action allows the user to load a game state that was previously saved using the "Save State".

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# 2. Analysis of Design Problem

After using this application, we can assess or analyse the design problem on the basis of comparing the goals of the application and the user requirements, the user may face problems for example:-

- External controller is not bein connected.
- Lag issues.
- No sound.

- Device heating up.
- Configuration problem,
- File not found in local storage.
- Unsupported format.
- Unable to resume game.

- Some consoles(PS2) may not work on low-end devices.

# 2.1                 Background Review

**What exactly is a video game emulator?**

A video game console emulator is a type of emulator that allows a computing device to emulate a video game console's hardware and play its games on the emulating platform. More often than not, emulators carry additional features that surpass the limitations of the original hardware, such as broader controller compatibility, timescale control, greater performance, clearer quality, easier access to memory modifications (like GameShark), one-click cheat codes, and unlocking of gameplay features. Emulators are also a useful tool in the development process of homebrew demos and the creation of new games for older, discontinued, or more rare consoles.

**How does it work?**

The code and data of a game are typically supplied to the emulator by means of a ROM file (a copy of game cartridge data) or an ISO image (a copy of optical media), which are created by either specialized tools for game cartridges, or regular optical drives reading the data. Most games retain their copyright despite the increasing time-span of the original system and products' discontinuation; this leaves regular consumers and emulation enthusiasts to resort to obtaining games freely across various internet sites rather than legitimately purchasing and ripping the contents (although for optical media, this is becoming popular for legitimate owners). As an alternative, specialized adapters such as the Retrode allow emulators to directly access the data on game cartridges without needing to copy it into a ROM image first.

**What is it's importance?**

An original cartridge or CD in a display case preserves the game, in part, but it doesn't necessarily preserve the experience of playing the game. At least, not in a way that most people can join in.
Emulators can't bring this back completely—the buttons won't feel the same, and we won't be looking at the same CRT monitor. But in terms of keeping classic titles around, in a playable state, emulators do the job.

Emulators help preserve classical gaming history.