User Manual:

Guitar God - Smart Interactive Guitar Learning System

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Introduction

This user manual outlines how to operate the Smart Interactive Guitar Learning System – a beginner-friendly platform designed to help users practice guitar chords, learn scales, and play full songs using real-time visual and audio feedback. The system integrates guitar sensors, LED guidance, and a mobile interface to enhance user learning efficiency.

By following this guide, users will be able to:

Set up and connect their interactive guitar system

Use the Desktop app to navigate different learning modes

Interpret visual feedback from the guitar neck

Track their musical progress over time

The system aims to make learning guitar more accessible and engaging, especially for users with minimal music theory knowledge.

Resources: Equipment & Materials

To operate the Smart Guitar Learning System, the following components and tools are required:

Hardware Components:

Interactive Guitar (fitted with pressure sensors)

Microcontroller (Raspberry Pi Pico)

LED Strip on fretboard

Rechargeable Battery Pack/Plug in USB-Micro

Desktop application (Guitar God Desktop App compatible)

USB-Micro Cable for firmware updates

Software & Tools:

Pre-installed Desktop App (Guitar Companion)

Guitar Tuner (external or app-based)

Cloud Storage Access (Azure Account)

Ensure all hardware components are assembled and powered before starting. The system is designed to be non-intrusive and should not alter the natural sound of the guitar.

Steps to Operate: Instructions

This section will guide you through setup and use of the Smart Guitar Learning System:

1. Initial Setup and Power-On
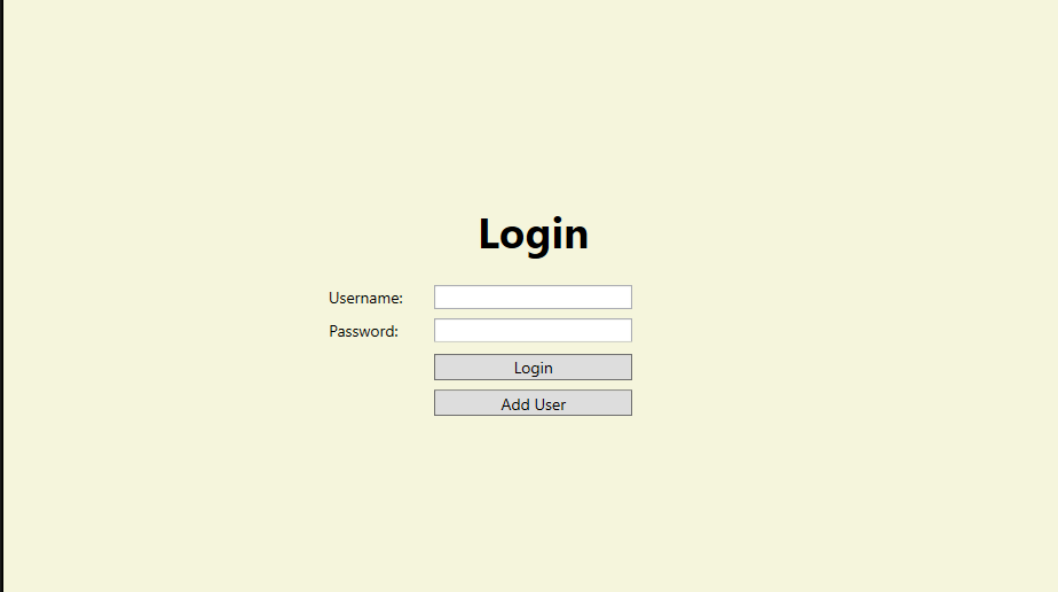
Place the guitar on a stable surface.

Connect the battery pack to the microcontroller's power input.

Ensure all sensor connections are secure (refer to wiring diagram if provided).

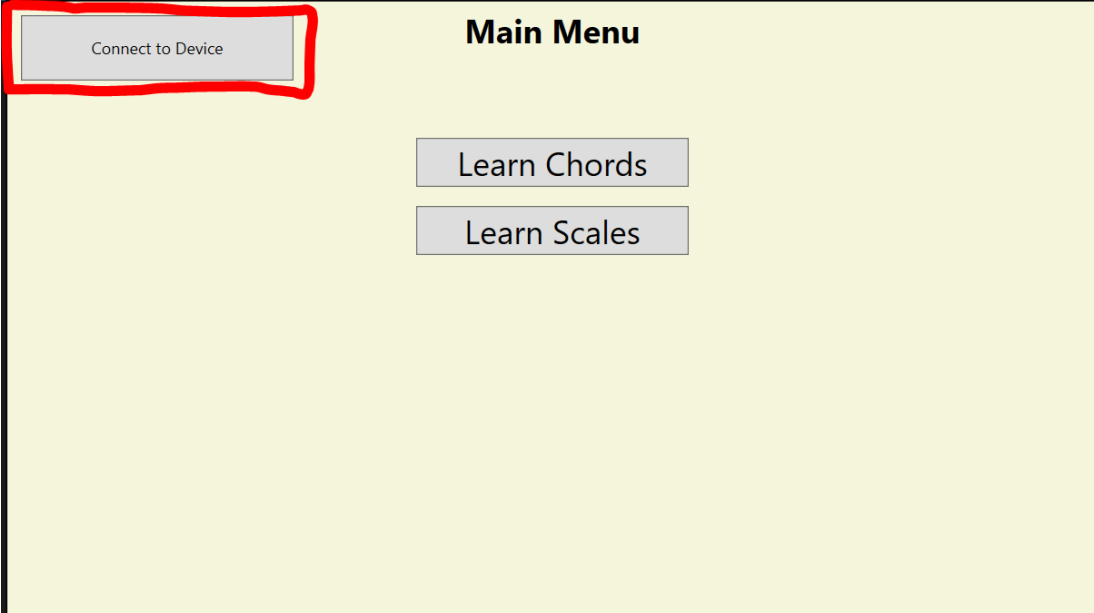**Open the Guitar Companion App on your Desktop.**

2. Pairing the Guitar System with Desktop App

Log in to your personal account:

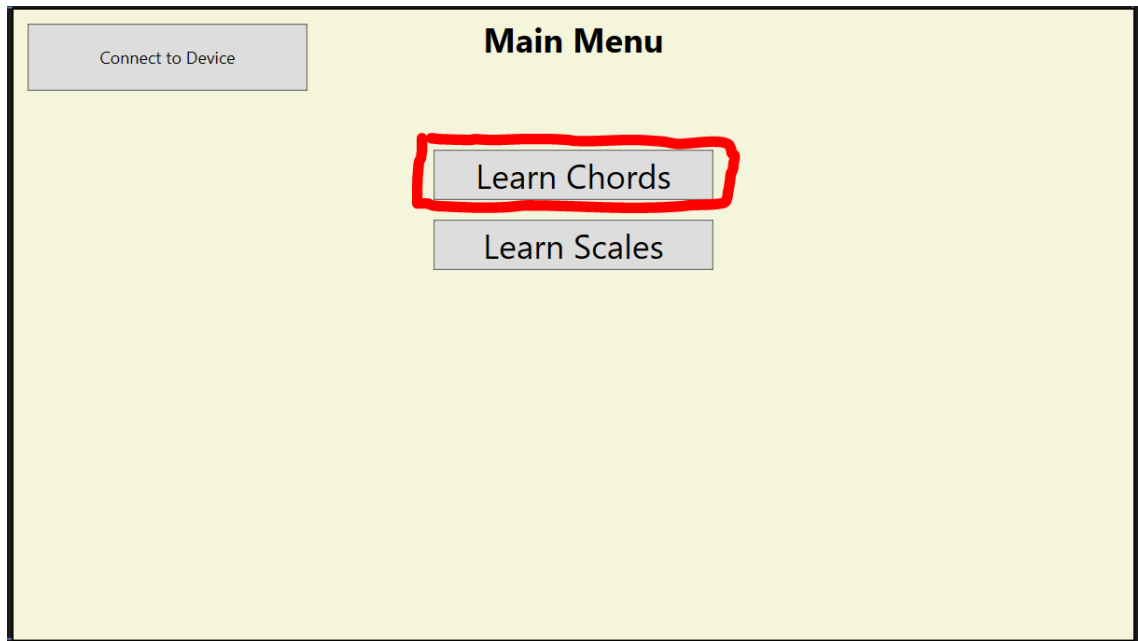**After entering the main menu press "Connect to device":**

Wait for confirmation. The LED strips will flash green on connection.

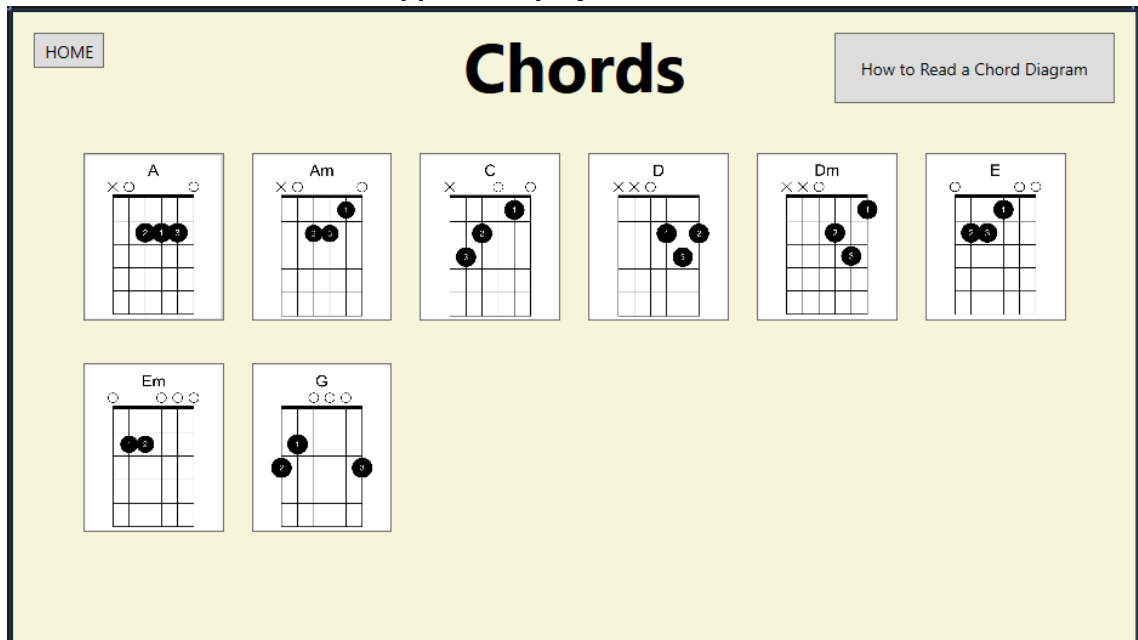**3. Using Learning Modes**

After pairing, choose one of the following modes from the main menu:

A. Learn Chords

Select Practice Chords from the app menu.

The app will display a random chord.

Follow the LED indicators on the guitar neck to place your fingers correctly.
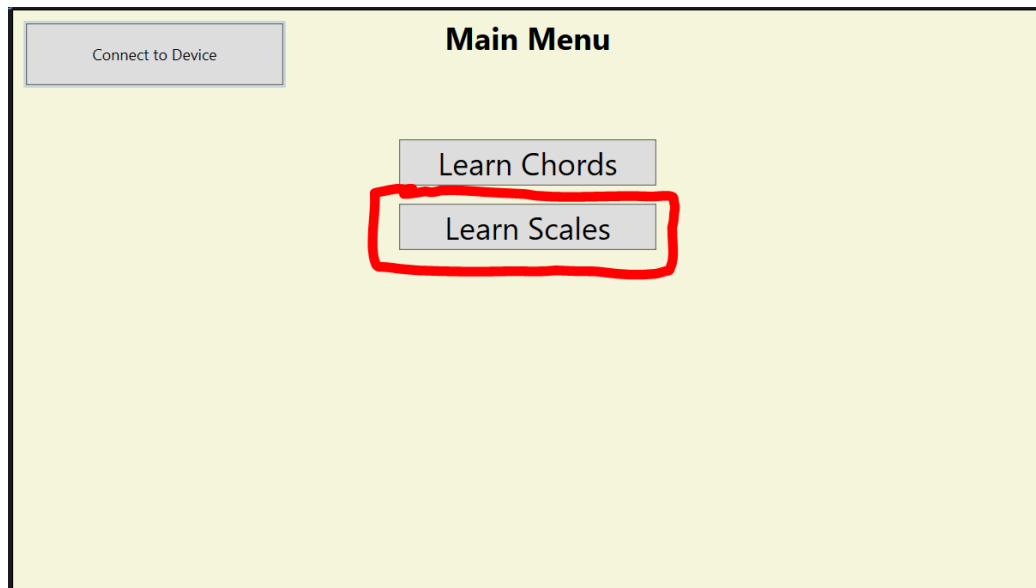
Apply pressure.

If the correct pressure is detected, LEDs will flash blue, and the app will proceed to the next chord.

Incorrect placement will be marked in red, with corrective guidance provided.
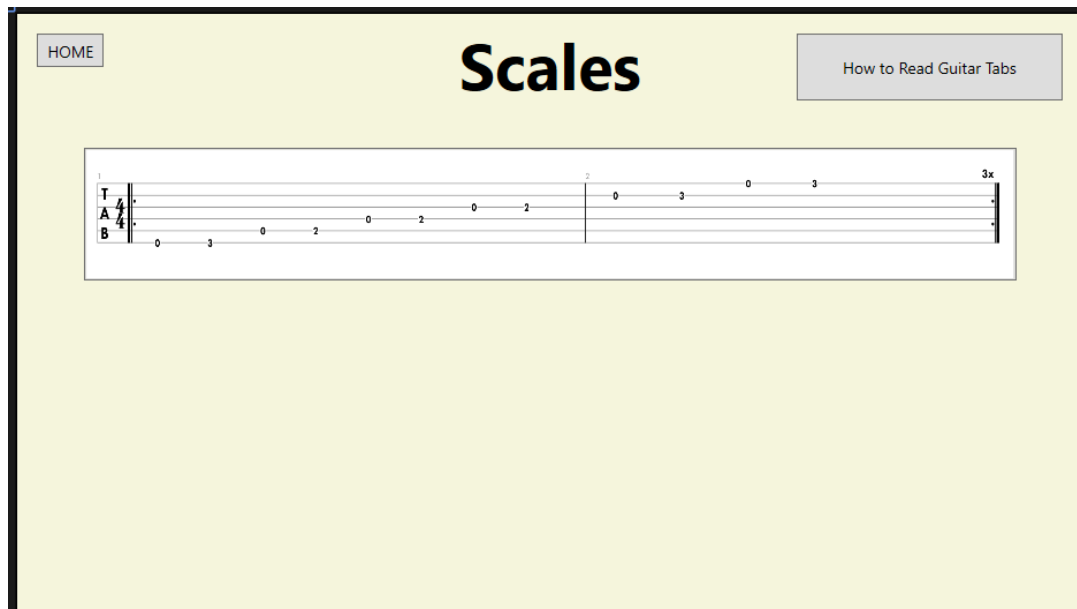
B. Learn Scale

Select Learn Scale.

App displays notes on staff and fretboard.

Play each note as shown.

Conclusion

This interactive guitar system bridges the gap between traditional learning and modern technology. The LED guidance and real-time feedback system allow new guitarists to learn chords and scales efficiently without formal lessons.

For best results:

Tune the guitar before each session

Maintain full battery charge for uninterrupted app communication

Periodically review user progress in the app dashboard

Future app updates may include advanced tutorial packs, achievement badges, and cloud backup options.