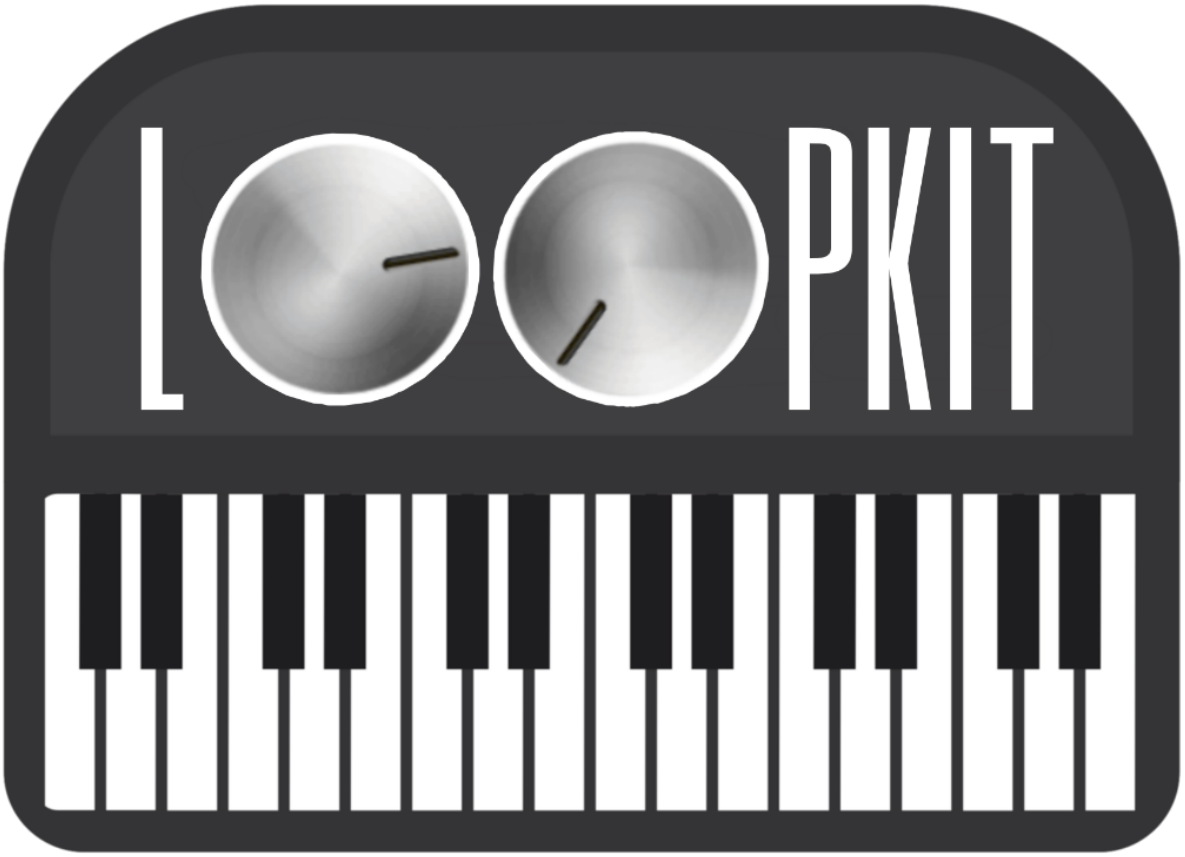

LoopKit

User Manual

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Document Completed: 07/05/21

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1. INTRODUCTION

1.1. Abstract

Loopkit is a digital audio workstation (DAW) application for Android devices. The app provides users with the means to record audio (e.g. vocals, guitar chords, beatboxing) with their device, edit it and loop it to create original music to play along to. Users can also use an in-built drum machine that allows them to play sampled sound in whatever sequences that they choose. These features in combination with one another allow musicians to record and work with music on-the-go in an accessible way.

1.2. Installation

Any user who wishes to use ‘LoopKit’ can download a build of it in the form of an APK (Android Application Package). An APK is the package file format used by the Android operating system to distribute and allow for the installation of mobile applications, mobile games and middleware.

Prerequisites:

- Android Device (4.4.+)

Steps:

1. Access the ‘app-debut.apk’ package from the link below on your Android device. https://drive.google.com/drive/folders/19YiEWxQI8rBqP0qZFbv8dgWjPyrnBVWj?usp=sharing
2. Accept permission requests in regards to device microphone access.
3. Navigate to ‘LoopKit’ on your device again if you wish to launch it again

Following these instructions will allow you to successfully install ‘LoopKit’ on your Android device and use it for whatever purpose you chose.

1.3. Glossary

Beats Per Minute (BPM): The speed, pace or tempo of a given piece of music.

DAW: Digital Audio Workstation; software application where music is recorded, edited and produced. Some popular ones include ableton, garageband and FL studio.

Integrated Development Environment (IDE): Software application which provides useful facilities to computer programmers for software development. For example, Android Studio.

Layer: An individual audio track which can be played simultaneously with other audio tracks.

Loop: A seamless audio track that plays continuously over and over again and the totality of all the layers playing in conjunction with the sequencer on ‘LoopKit’.

PCM (Pulse-Code Modulation): An uncompressed audio format that uses a “sampling rate” that describes how often the original audio was sampled, and a “bit depth” which describes how many bits are used to define each sample.

Sampler: A digital instrument that uses sound recordings of real excerpts from recorded songs or found sounds.

Sequencer: Play back music, by handling note, sample and performance information.

WAV (Waveform Audio File Format): An audio file format standard, developed by IBM and Microsoft.

2. USER GUIDE

The user-base should consist of musicians seeking an application that allows them to play a custom sequence of music and record their own to loop separately or together. Every time the user boots up the application, they will be greeted with useful information in a popup instructing them on how to use it. The following section will detail the three notable features available in ‘LoopKit’ and how to use them.

2.1. Sequencer

The sequencer is a series of sixteen buttons acting as musical steps. Each step can be selected in conjunction with one of four instruments found in a drum kit. These steps are then iterated through at whatever speed the ‘BPM’ (beats-per-minute) module is set to and any selected steps produce a sampled sound associated with whatever instrument was selected for it.

Steps:

1. Select BPM (beats per minute) to determine the tempo of the song.
2. Select an instrument from a choice of four:
    - Kick drum
    - Snare
    - Hi-hat
    - Percussion
3. Select steps in which you’d like your chosen instrument to play. The instrument can be changed and a fresh series of steps will be presented for it. This does not override any previously selected steps with another instrument as all will loop simultaneously.
4. Tap the ‘play’ button in the initiation module to start the drum sequence loop.
5. Tapping the stop button will cease the current loop and preserve it for if the user wishes to resume it again.

This feature alone provides users with a useful tool that produces consistent musical tracks for them to play along with or ‘jam’ to. In a survey recorded during project pre-production in semester one, participants made it clear that a music sequencer, especially one that emulates a drum kit, was the most desired feature.

2.2. Audio Recorder

Implementing user-recorded audio is core to the design of the app and it provides users with the means to have more creative input over the music being played. ‘LoopKit’ goes a step further and provides users with four layers in which they can record multiple tracks of audio that will loop concurrently to form the loop they wish.

Steps:

1. Start the pattern with a basic drum beat to ensure that your loop will be in time
2. Tap the ‘Record’ button from one of the four slots available. (Starting with the first)
3. Wait till the loop restarts (this is when your recording will start)

4. Perform or say whatever you'd like to be recorded into the device's microphone.
5. Once the loop has finished your recording has been saved, pause the drum loop and Tap the 'play' button in the initiation module to hear the loop start again with what you just recorded synced to the beat. Multiple recorded layers can and will play at once if desired.
6. Tapping the stop button will cease the current loop and preserve it for if the user wishes to resume it again.

This feature is one that was highly sought after by survey participants who were interested in the concept of 'LoopKit'. The '.wav' format of the recorded audio will ensure that it is high-fidelity and clear. All recorded audio can be played alongside any selected music sequences with both being started and halted by the 'pause' and 'play' buttons.

2.3. Looping

The ability to loop audio is the cornerstone of 'LoopKit'. Providing a tool for musicians not only to play alongside, but produce music with was one of the primary reasons for undertaking this project in the beginning. Users can loop a selected sequence of musical sounds, several layers of recorded audio or both simultaneously to produce original music tracks. The speed at which the music sequence is played alongside the recorded audio can be determined by the user in BPM.

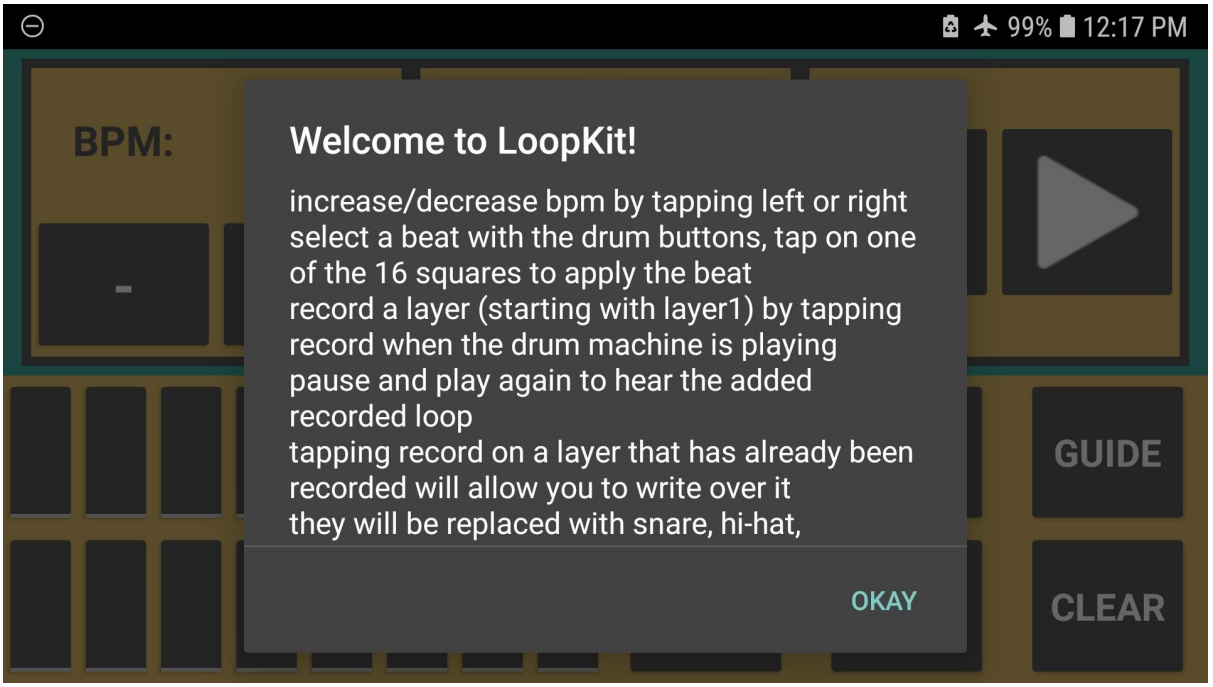
Steps:

1. Fulfil any of steps detailed as part of the 'Sequencer' or 'Audio Recorder' sections to produce audio tracks to be played.
2. Tap the 'play' button in the initiation module to begin the loop of whatever audio has been set up.
3. Tapping the stop button will cease the current loop and preserve it for if the user wishes to resume it again.

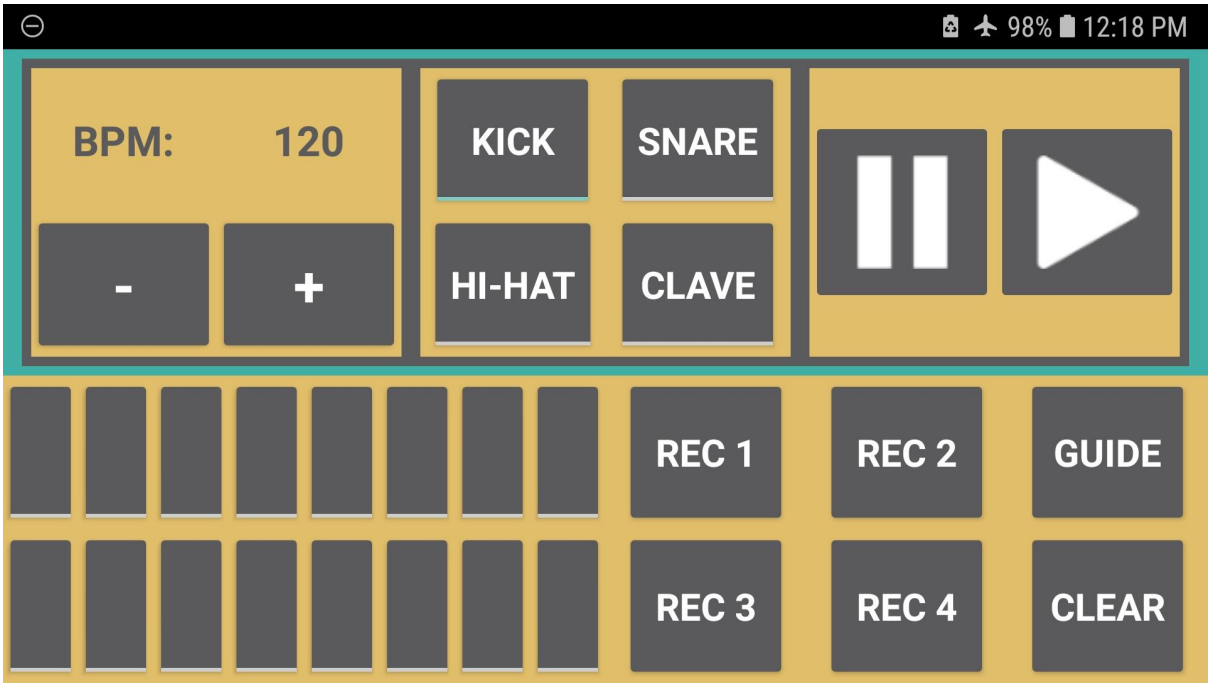
All loops which are stopped are immediately preserved and resumed again at will. Whenever paused, tracks within the loop can be altered if the user wishes to make any changes to the sequencer steps or recording layers. Together, this combines to produce a useful tool or any musicians on the go who need a small workstation to hammer out any musical ideas with.

3. SCREENSHOT

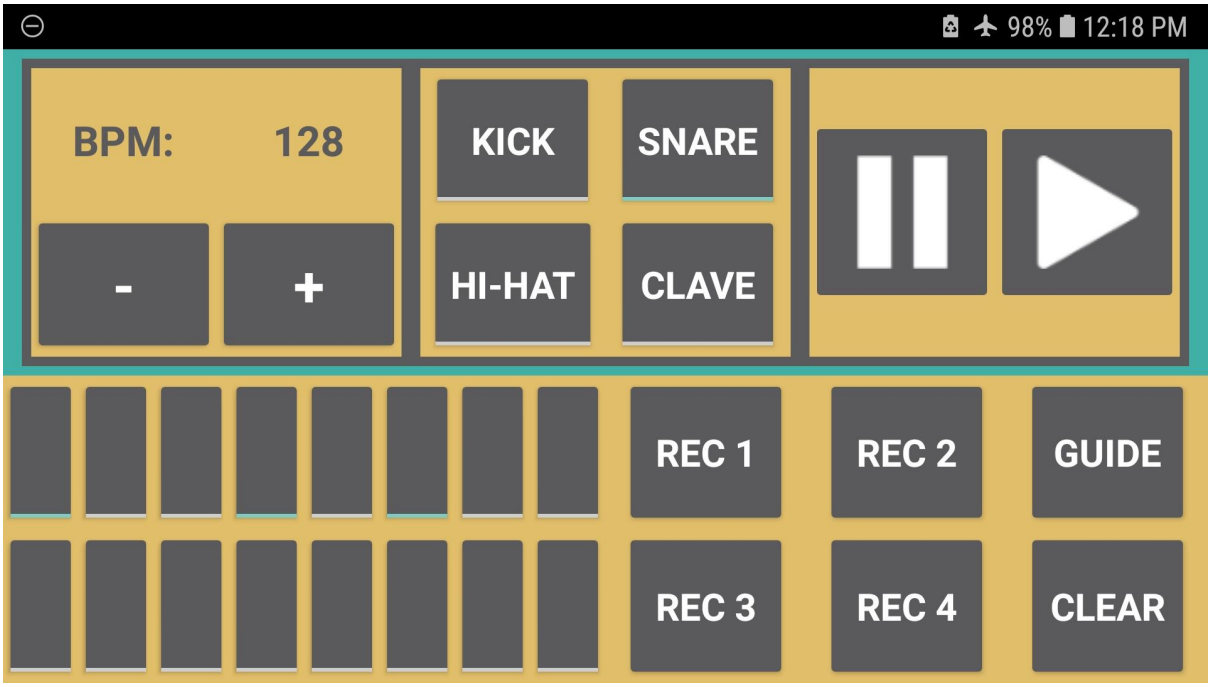
3.1. ‘LoopKit’ on startup



3.2 ‘LoopKit’ main screen, kick pattern (empty)



3.3. ‘LoopKit’ main screen, Snare pattern



3.4. ‘LoopKit’ main screen, Hi-hat pattern