Metronome App

COMP 3008 – Assignment 1 (Part 2)

Bjørn Vårdal

P2R.1,2 and 3

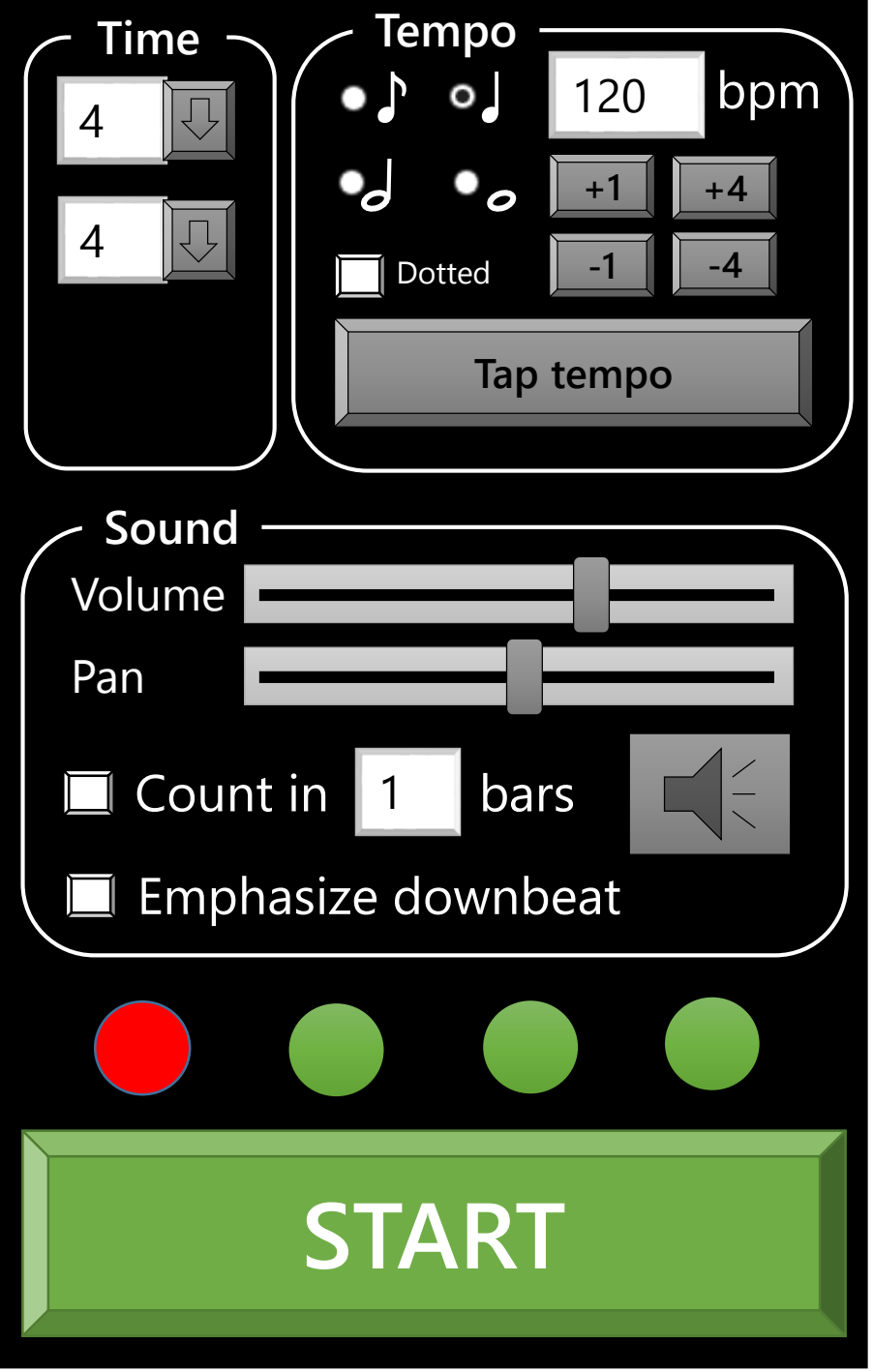
MR-18 – The tempo can be given in terms of different note values.

MR-19 – The user can choose to emphasize the first beat of each bar.

MR-20 – It should be clear which state the metronome is currently in.

P2R.4 and 5

The coverage of each requirement is explained in the over the next three slides. I believe it is easier to understand how each requirement is satisfied when seen in context.



General

The design assumes the use of a wireless device with touch screen interface ***(MR-17)***. The design is task oriented from top to bottom. The components are grouped to make it easier to locate controls ***(MR-9)***.

Time

This is the time signature used for counting. It determines how many lights are used for the visual tempo indication, and when the downbeat is given in the audible temp indication ***(MR-14)***. Since the selection should be limited, the settings are given as dropdown lists.

Tempo

The note value of a beat changes with the time signature, and I have therefore included the option of changing the note value used in the BPM. E.g. one might prefer to give tempo in terms of dotted quarter for a $\frac{6}{8}$ time signature ***(MR-14 and 18)***.

The tempo can be set either by typing (direct input) ***(MR-1 and 2)***, by adjusting with +/- 1 or 4 ***(MR-5 and 8)***, or by tapping the tempo ***(MR-3)***. The *Tap* button can use the audible and visual indications of the metronome as feedback, and will use the current settings to determine whether which to use ***(MR-4)***. It will use the time signature to decide how many beats it needs to determine the tempo.

Audible indication

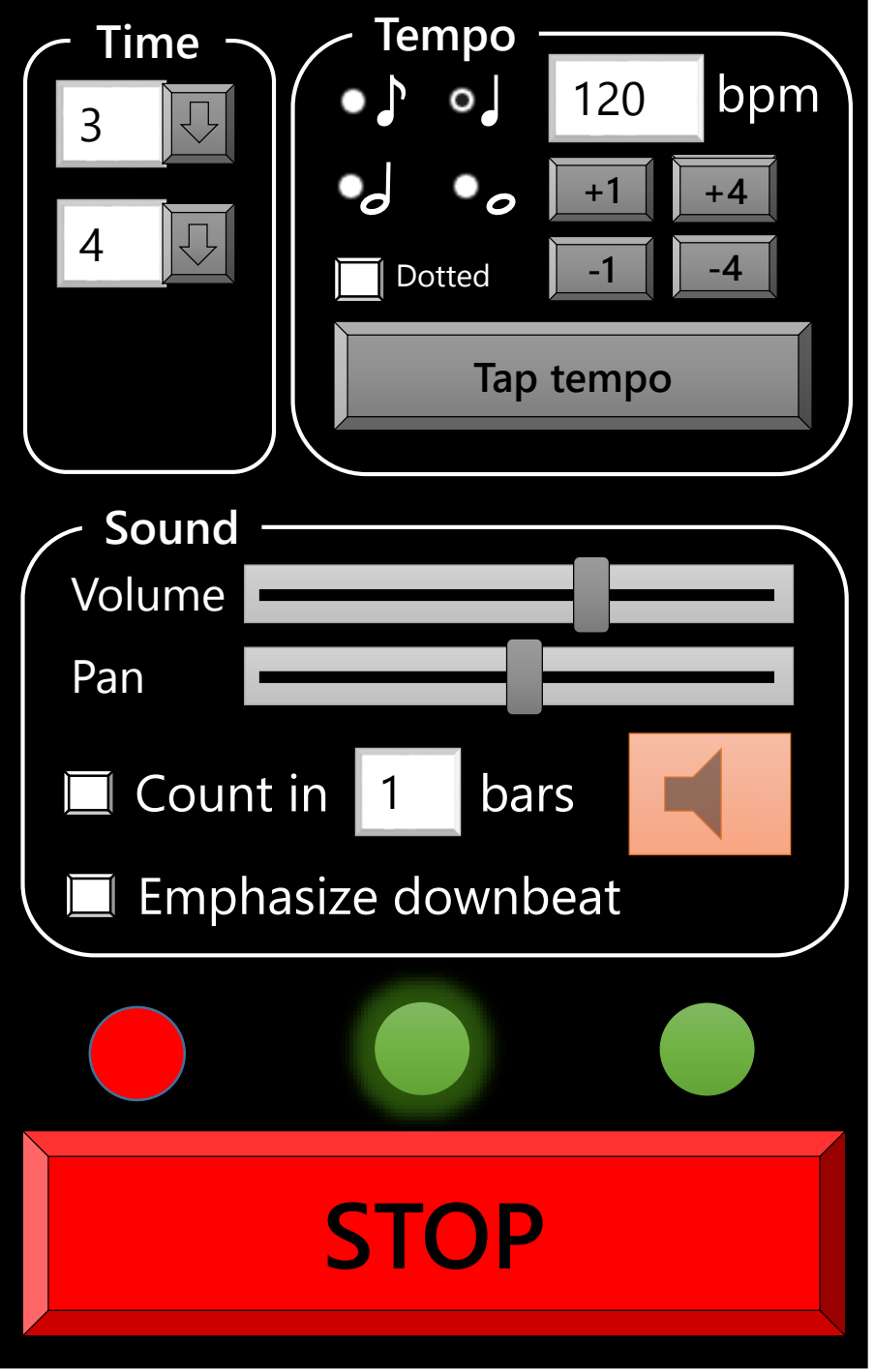
The volume (level ***(MR-6)*** or on/off ***(MR-10)***) and pan ***(MR-13)*** can be adjusted. The sound will be an unpitched click, and if *emphasized downbeat* is enabled, the first beat of each bar will have a pitched click ***(MR-16 and 14)***. The audible indication can set to only be active for the first X number of bars ***(MR-12)***.

Visual indication

The lights above the *Start* button will be used for visual feedback. They will light up for each beat from left to right, i.e. one cycle is one bar. The number of lights is equal to the number of beats per bar, and the first beat of each bar will use a different colour than the other beats.

Start button

The *Start* button is located near at the bottom to allow control with one hand (reachable by the thumb) ***(MR-11 and 7)***. The button turns into a red *Stop* button when clicked ***(MR-20)***.



Time

Notice that the time signature has changed, and as a result the number of visual indicator lights has changed to reflect this.

***Stop* button**

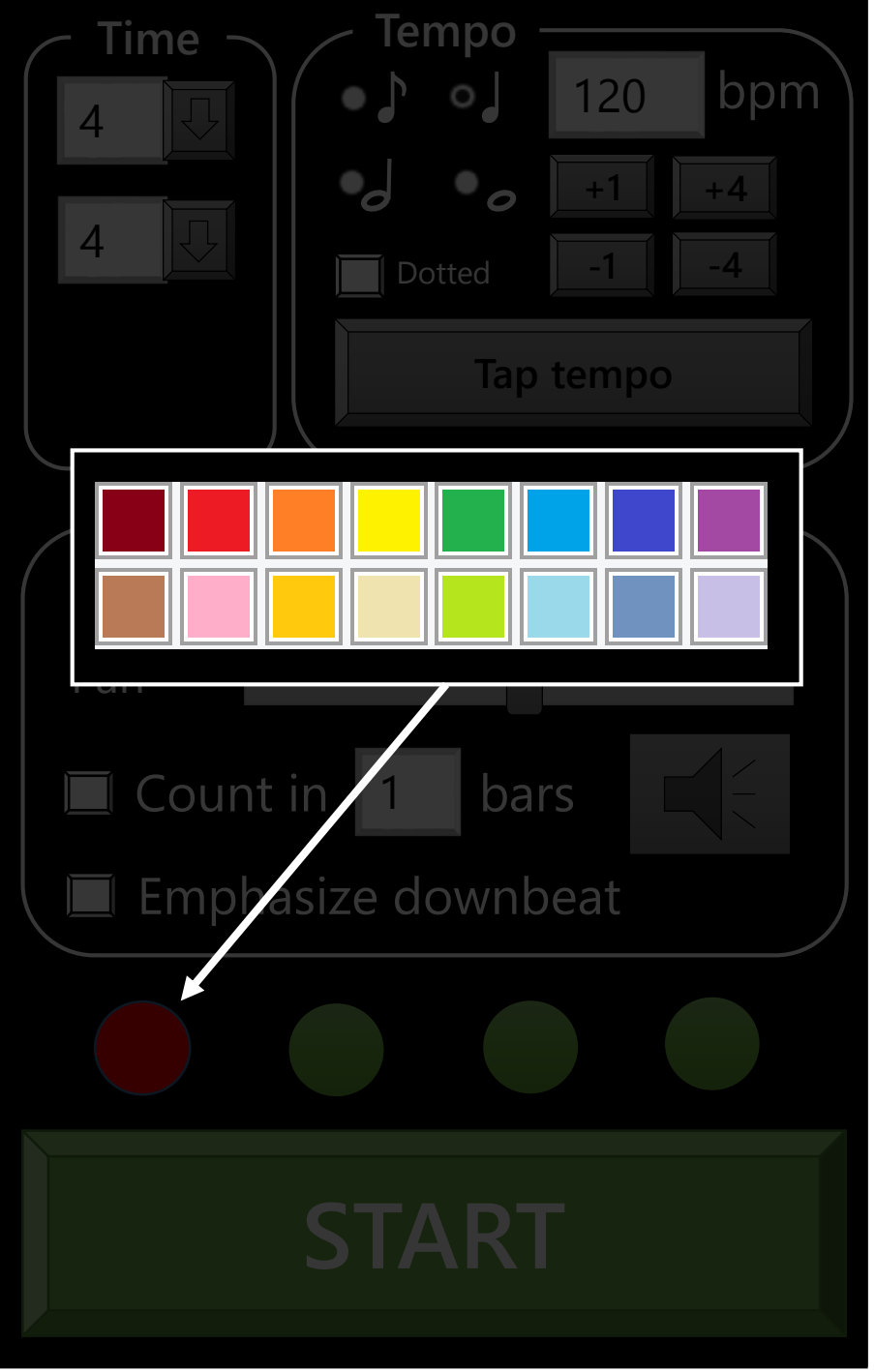
The *Start* button has been clicked, and the metronome has started. Notice that the color has changed to red, and the text has changed to *Stop*.

Visual indicator

Notice that the metronome is currently on the second beat, and the middle indicator light is therefore on.

Audible indicator

The audio on/off button as been clicked, and audible indicators have been turned off. This is indicated by the change in colour and the missing *sound lines* from the speaker symbol.



Setting colors *(MR-15)*

In case the environment makes it hard to see certain colors, the user can change the color of a component. This is done either by pressing down on a component for 2 seconds, thereby opening the color selection window shown here. This can also be done through the devices settings menu.

P2R.6

1. Functional
2. Usability
3. Usability
4. Functional
5. Functional
6. Usability
7. System (constraint)
8. Functional
9. System (constraint)
10. Domain
11. Usability
12. Domain
13. Domain
14. Domain
15. System (constraint)
16. Domain
17. System (constraint)
18. Domain
19. Domain
20. Functional