**Project Timeline: Harry Moss 10478272**

This timeline is a bullet-point list of the methodologies which aim to have been completed when their specific month **ends**. There are risks considered in each and some possible ways of overcoming them.

**October 2021**

* Necessary parts have been ordered and delivered, waiting to begin testing.
* Relevant software/further resources have been acquired and downloaded, ready to be used.
* Relevant technical knowledge for basic DSP assembly code and C/C++ has been gathered and understood. These will be necessary to refer to later when testing/programming begins.

**RISKS:** Some parts may take weeks to deliver due to overseas postage/global semiconductor shortage – order parts as quickly as possible to mitigate them not being available in time for testing.

**November 2021**

* Data about the requirements for the project (project aims 1, 2, 5 and 6) has been gathered from relevant sources e.g. online research and peer questionnaires. Conclusions will be made about each aim in order to have a bedrock view on what the target market demands.
* Testing as to the best DSP platform (aim 1) has been completed thoroughly, with a platform chosen to move forward with.
* Programming of the first (and most important from the research data) effect has begun.

**RISKS:** Peer review feedback may not be as representative of the target market due to a smaller sample size – a greater reliance on the online data is necessary. Testing could also overrun longer than needed – this should be kept to the strict requirements laid out in the objectives, with a DSP system chosen as early as possible.

**December 2021**

* A breadboard of the full circuit, including all the control switches, has been completed.
* Programming of the first effect is complete, with thorough testing to ensure seamless operation.
* A basic and rudimentary form of wireless (such as Bluetooth) communication between a smartphone and the DSP chip has been programmed and completed.
* Begin populating Final Report.

**RISKS:** Programming a DSP effect may take longer than anticipated, as I personally have no experience with DSP assembly code – considerations should be made to code the effect offline first (and perhaps using slower code in C/C++ where necessary), and then move into real-time as soon as the offline has been established.

**January 2021**

* If project is on schedule, then completion of 1 additional effect in order to gauge the result of a multi-layered effect system.
* Begin designing PCB and possible housing.

**RISKS:** Possibility of huge increase in complexity having 2 effects working together in tandem on the same signal – if it is taking too much time then begin focus instead on PCB design and housing.

**February 2021**

* PCB and housing designs complete. Begin and complete fabrication of PCB with soldering complete.
* Complete PCB testing after soldering to confirm validity.
* Begin housing fabrication and finish any additional ordering of guitar equipment needed for PCB integration.

**RISKS:** Any further ordering may also demand longer shipping time – establish if anything needs to be ordered well in advance (start of the month) and order as soon as possible.

**March 2021**

* Complete housing fabrication.
* Complete board integration into a guitar, performing all necessary adjustments to the guitar body/scratchpad.
* Final project testing completed in a variety of conditions, ensuring there are no program glitches or outside interference that could adversely affect the internal pedal.
* Complete > 50% of the Final Report.

**RISKS:** Guitar adjustments has the potential to use up a lot of time – perform rigorous measurements of all internal and external dimensions necessary well in advance and only make adjustments where needed. Testing may also not go successfully, meaning delays and backtracking – this is mitigated somewhat by the timeline giving space next month for desirable (not essential) features.

**April 2021**

* If final project testing is complete, then complete programming of remaining 3 guitar effects with testing.
* If remaining effects programming is complete, then complete programming of a more refined, user-friendly app system to communicate with the internal DSP board.
* Complete Final Report.
* Begin preparations for Final Project Presentation.

**RISKS:** Final Report may take longer than planned – look ahead and read what the Final Report demands right from the start of the project and ensure that any important points are added to a skeleton copy from the beginning of this timeline towards the end. This will speed up the report writing tremendously.

**May 2021**

* Complete Final Project Demonstrations.

**RISKS:** Project could show erratic behaviour and work only at certain times as opposed to all the time – ensure that testing is rigorous at every stage of the project, including subjecting the guitar signal to many possible combinations of volume/tone potentiometer readings along the way. Another mitigation is to focus on 100% reliability of a single effect in the guitar pedal, as opposed to a range of effects with a very scattergun approach to how well they perform overall.