**Specifications**

**Standard Power input so in the event of losing the power supply a replacement is easily available**

Common voltage: 12v

Common power connector: Centre positive, 2.5mm barrel jack

**Discrete, black wood case to make the display stand out**

**Arcrylic sheet in the front of the case to protect the led boards and to stop people touching the led boards**

**Picture hook for the option to wall mount the unit**

**Mounting ports on the back for laser cut arcrylic legs to make the unit more stable so it doesn’t fall over**

**Power socket, audio ports and SD card slot recessed on back of unit so when it is on a wall it lies flat**

**Groove cut out of bottom lip on unit so cables can run down the wall it is mounted on**

**Hard power switch on side of unit so power can be completely isolated from the unit to minimise fire risk**

**Audio inputs**

**Microphone for use with audio sources which can be heard by the unit and do not want to use an Aux cable**

**Microphone should bee mounted to the front of the unit for the best signal from the sound in the surrounding area**

**Microphone needs a preamp to bring it up to line level**

**3.5mm audio socket with another 3.5mm audio socket for passthrough and isolation so it doesn’t distort the audio going in if they are using a passive splitter**

**Audio must be actively converted to mono to prevent distortion on the audio input as it could be passively split somewhere or be using the passthrough socket**

**All audio inputs must be isolated from each other and when a input is selected it must pass through an auto volume control circuit before entering the microcontroller. So the audio can be scaled to get the most amount of detail out of it**

**IR remote control for control without touching the unit**

**A button on the remote should be used to change between the audio inputs and turn of the unit in turn in the pattern: Aux socket, Microphone, Off**

**A button on the remote should be used to change the display style for the spectrum analyser, modes could include variants of live mode showing the current audio frequencies, peak hold mode where dots show when the audio peak in the last few seconds and how high the peak was, and a mode when the whole screen is on and gets dimmer and gets brighter when a beat happens in the audio. The modes could include horizontal or vertical varients of these modes.**

**A button on the remote should be used to change the colour pattern of thee screen. Patterns would be stored on a sd card with a picture for each pattern so the user could create their own patterns**

**The unit must have an sd card slot for bmp files stored on an sd card. Files will be stored in the following folder structure**

**PATTERNS**

**HORIZONTAL**

**VERTICAL**

**If the folders do not exist they will be created with a template file that is plain white called “template.bmp”**