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| --- | --- | --- | --- | --- | --- | --- | --- |
| **TPM** | **Dol\*** | **Metric** | **Target** | | **Current Status** | **Score** | **Testing method** |
| Min | Max |  |  |  |
| Measurable number of panels per time | + | Total number | 1 | - | 1 | 1 | Number of current regulator outputs |
| Weight | - | Kg | 0 | 18.5 | 5.5 | 1 | Weighing system |
| Daily Operable Time | + | Hours per day | 8 | - | 9.76 | 1 | Based on power consumption of Raspberry Pi (1250mA), Display (550mA), and Camera (250mA) connected to 20000mAh battery. |
| Initialisation Time | - | Minutes | 10 | 15 | 5 | 1 | Timed Testing |
| Lifespan | + | Years | 1 | - | 1 | 1 | Lowest warranty of components |
| Waterproof | - | IP rating | 65 | 69 | NA | NA | System still in prototype phase, not finalised with proper casing |
| Windproof | - | Beaufort Wind Force Scale | 6 | 10 | NA | NA | System still in prototype phase, not finalised with proper casing |
| Scratchproof | - | Mohs Scale | 5 | 10 | NA | NA | System still in prototype phase, not finalised with proper casing |
| Measurement Timefor 50 pairs | - | Minutes | 20 | 30 | 5 | 1 | Timed testing |
| Pixels Per Inch | + | PPI | 160 | 300 | 133 | 0.85 | Based on resolution of Raspberry Pi display |
| Number of user input | - | Total Number | 5 | 8 | 4 | 1 | Counted inputs on GUI |
| Lead time for parts | - | Days | 3 | 14 | 8 | 1 | Longest lead time of components (due to low stock) |
| Cost | - | AU dollars | 1500 | 1800 | 1319.38 | 1 | Summed cost of used components |
| Maximum operable lighting conditions | + | Lux | 6000 | 8000 | 500 | 0.1 | Measured using lux meter in a dimly lit room |
| Maximum operable terrain conditions | + | Slope degree | 35 | 45 | NA | NA | Tripod selection not finalised as still in prototype phase |

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| --- | --- | --- |
| Part | Decision | Support |
| HV9910C | The chip that reduces the voltage and controls the current flowing through the solar panel | Suggested by electrical expert Chris, validated by LT spice results |
| Resistor | To reduce the voltage where necessary and ensure that a high voltage power source can be used | The chip, potentiometer and switch operate at a low voltage compared to the high voltage power supply |
| Capacitor | To use capacitor where necessary to help reduce current amplitude | Validated by LT spice results |
| Diode | Alternative load to help current flow through the circuit | Validated by HV9910C Datasheet |
| Switch | To break circuit when not in use or complete circuit when in use | Needed for RF link connection to control circuit from GUI |
| MOSFET | To help current pass from the chip to the solar panels safely | Suggested by client and validated by HV9910C Datasheet |
| Inductor | To reduce ripple current in the circuit | Suggested by electrical expert Chris, validated by LT spice results |