

Table 5. Calculation of performance index of Ultraviolet Filtration and Ionizer Filtration

| Selection Criteria | Weighted Factor | Ultraviolet Filtration | | Ionizer Filtration | |
|----------------------------|-----------------|------------------------|----------------|--------------------|----------------|
| | | Scaled Property | Weighted Score | Scaled Property | Weighted Score |
| Capacity | 0.1 | 70 | 7 | 60 | 6 |
| Porosity | 0.2 | 0 | 0 | 0 | 0 |
| Compatibility | 0.1 | 80 | 8 | 70 | 7 |
| Flow Rate | 0.3 | 80 | 24 | 80 | 24 |
| Efficiency | 0.3 | 70 | 21 | 90 | 27 |
| Material Performance Index | | | =60 | | =64 |

Cost Analysis:

| Component Name | Quantity | Unit Price (USD) | Total Cost (USD) |
|--------------------------|----------|------------------|------------------|
| Arduino NANO | 1 | 1.875 | 1.875 |
| HC-05 | 1 | 2.25 | 2.25 |
| Resistor | 6 | 0.01 | 0.06 |
| Capacitor | 2 | 0.02 | 0.04 |
| 9V battery | 1 | 1.10 | 1.10 |
| TP4056 | 1 | 0.50 | 0.50 |
| Ionizer | 2 | 4.80 | 9.60 |
| Filter | 3 | 0.80 | 2.40 |
| Air Pump | 2 | 02 | 04 |
| Total cost of the system | | | 21.825 |

5 Conclusion:

The main aim of this research is designing and building a low cost, wirelessly controlled advanced air purifying facial mask. This system is both wireless and manually controlled. As the system is battery powered and low noise making air pump is used, so the noise interference is reduced and subject safety is ensured. The cost of the system is USD 21.825 which is ideal for under developed and developed countries. The component used for this system consumes very low power and it takes maximum current of 55 mA. It is capable of running about 8hrs by one full charge. It can be more cost efficient by further development in future.

6 Reference:

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Biography:

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