VCE Systems Engineering

**Potential Test Repository:** Measurable (M) and Subjective (S) Tests

|  |  |  |
| --- | --- | --- |
| Test Type | Test Variations | Test Equipment |
| Speed Test |  | * Stop watch * Tape measure |
| Range Test | * Distance travelled on limited power source. * Reception of radio transmission by distance. * Sensory detection distance. | * Tape measure/ measuring tape (long) * Multimeter |
| Sound Test | * Quality of sound; clear, interference, feedback. * Volume of sound; high and low. * Tonal range of sound. | * Decibel meter * Musical tuner |
| Durability Test | * Impact to test object with varying force. * Torsion, Compression, Tension, Bending. * General wear and tear. * Chemical exposure * Weight/ load limit | * Impact tool ; hammer, etc. * Vice or clamp * Sandpaper or file * Chemical |
| Environmental Test | * Extreme heat/ cold * Wet and dry conditions * Internal or external * Sun, wind, earth exposure * Salt exposure * Dust/dirt resistant | * Thermometer * Humidity meter * Light meter |
| Reliability Test | * Consistency (same result within tolerance) * Repeatability (functions multiple times) * Subsystems working together |  |
| Power source Test | * Voltage/ Current sufficiency * Battery life (time to flat) * Battery recharge time * Renewable efficiency (eg. Solar) | * Multimeter * Battery charger * clock |
| Function Test | * Control sensitivity test * Control range (number of) * Lag/glitch |  |
| Operation Test | * Ergonomic test (human comfort) * Logical layout test | * Survey sheet |
| Visibility Test | * Brightness; varying conditions * Viewable distance * Contrast * Safety | * Tape measure * Variety of locations |
| Safety Test | * Sharp edge/ point test * Exposed wiring test (electrical) * Exposed mechanism test * Entanglement test * Material safety * Fume/ dust safety test | * Handling methods * Continuity tester * Material for entanglement/fume/dust * Fume cupboard |
| Detection Test | * Sensor testing (sensitivity, resolution, accuracy) | * Sensor input; light, sound, heat, vibration, movement, etc. |
| Appearance Test | * Opinion survey (purpose; safety, blend in, marketing) | * Survey sheet |
| Efficiency Test | * Noise test * Friction/ heat test * Duration testing * Waste testing * Vibration test |  |
| Accuracy Test | * Closeness to target performance |  |
| Drive Test | * Incline/ decline Test * Gradient side roll Test * Manoevrability | * Ramp and bricks * Obstacle course |
| Maintenance Test | * Accessibility * Component/ Part changeover | * Tools, spare parts |
| Dexterity Test | * Ability to pick up objects * Ranges of movement | * Objects of different shapes and sizes |
| Strength Test | * Weight held * Weight moved | * Stacking weights to increase overall weight |

|  |
| --- |
| Class suggestions |