**CLEANING GLASS MACHINE**

**REQUIREMENT**

**Background**

* + There are over 30 buildings using glass as exterior in Danang city. In addition, milions building need furbish their glasses monthly.
  + Most of buildings use workers to clean glass.

**Functionality**

* + Input: remote control, sensors, buttons.
  + Output: Alarm signal, LCD display(battery level, water level, mode operation).
  + Enable to detect edge of glass.
  + Alarm when battery is low or unable to move on glass.
  + Enable to work on all kind of glass.
  + Have 3 operation modes: cleaning floor mode (with water), SAVE ENERGY MODE and STANDAR MODE (with or without water –manual configure).

**Performance**

* + 100-150 m2/ hour
  + This machine can wash clean as worker do.

**Operational (Physical Environment)**

* + Outdoor or indoor condition.
  + Rechargeable battery.

**Reliability and Availability**

* + On-site technician in warranty time.
  + High reliability on part using to stick and move on glass.
  + Enable to stick on glass under 30 km/h wind speed.

**Social and Cultural**

* + End-users are non-technical.
  + Appearance may need to be MODERN.

**Political**

* Copyright registeration as soon as possible.

**Economic**

* Design cost : 4-5 students in 8 months.
* Manufacture cost : $500-600
* Cost of ownership : - Electricity to recharge.

- Battery replacement, $75/replacement.

**Energy**

* + Recharge after 8 hours working continuously.
  + 70,000 mAh battery – 2 years life.

**Health and Safety**

* + To guarantee safety in urgency situation, a long rope is including in product.
  + No sharp edges.

**Polictical**

**Environmental**

* + No black smoke emission.
  + No chemical leakage.

**Maintainability**

* + Maintainance at factory (if physical parts are brokendown.)
  + Update FIRMWARE through USB.
  + On-site technician to guide

**Manufacturability**

* + Impact on existing processes
  + Ability to use multiple factories, sub‐contractors

**Usability**

* Literary plug & play (no on‐site customization, programming, etc )

**Documentation**

* User manual
* Maintainer’s documentation