



Team Name	
University	
Product Name	
Category	

Problem Definition, Analysis and the Solution

In this highly competitive world, both men and women have been spending a significant amount of time at their workplaces. They have no time for their household work. The major household activities carried out in our day to day life are sweeping, washing clothes, cooking and opening/closing windows. For sweeping they have invented automated vacuum cleaners such as 'Roomba'. For washing clothes, there are automated washing machines. For cooking activities, we have smart rice cookers, smart coffee makers, intelligent ovens etc. But still there's no way to open/close our windows in home or in our workplace automatically when it's needed. Even though the ICT era has started, this is still being done manually. But there are some innovations which have come about regarding this area such as smart glass, remote window opener etc. 'Smart Glass' is a glass or glazing used to block light and operated by turning a knob. 'Remote Window Opener' uses a remote to open and close the windows within a limited area.

How many times have you faced difficulties because of not opening or closing windows at your home/workplace? In our lives we face so many difficulties since we're forgetting to open/close windows. E.g. dew drops, mosquitoes, gas leaks, security problems etc. So our solution is to implement a unit to replace the casement stay of a window (window stay – metal bar used to hold a window) and connect all the units to a hub which connects to the home network. It can do activities such as opening and closing windows at a set time, adapting and reacting to conditions such as rain, temperature which is discussed below.

Product Overview and Uniqueness of the Product

This unit replaces the casement stay as mentioned above...

Key Features

- Opening and closing windows at the set time
- Closing windows when raining
- Controlling the system through an app which can be used even when the user is not at home over the internet.

- It can be opened or closed according to external temperature.
- It can be used to open windows during a fire or a gas leak.
- It can be also used manually during a power failure.

Even at present, most of the windows are opened manually and one of the solutions which they have implemented for this problem is the 'Remote Window Opener' that can be used to open heavy windows. We can open or close windows only within a limited area with this. Another solution implemented for this is the 'Smart Glass' which can only block the light.

For smart glass windows, it costs about \$50 to \$100 per square foot. The whole kit costs about \$99 to \$249. These are only used in few world famous companies such as ... Those devices are highly costly and can't afford to use in homes. When installing our product, there's no need to change anything about your home windows. The only thing you have to do is replacing that casement stay with the existing window. So you don't need a vast technical knowledge to install our product because the installing process is simply as it is. Unlike the other products mentioned above, our system can be used to open and close windows at a set time, adapting windows to external and internal environmental changes and control windows over the internet

Business Model and Marketing Plan

When talking about the 'Business Model', our business strategies, values, and capabilities are so important. When it comes to strategies, we have to choose successful strategic positions like market positioning, product positioning, business network positioning, boundary positioning etc. Our target market is general public because of that we are hoping to sell our product at a fair price. Within Sri Lanka this solution is not yet implemented and therefore we don't have a powerful competitor to fight with. So we have a sustainable advantage towards our product. We can obtain sponsorships to our product easily since it's the only product which has these kind of features. As an example, we can get casement stays from manufacturers at a low price or we can build partnerships with them. The cost for manufacturing this at the experimental level is about \$20 to \$30 and if it is manufactured in wholesale the cost can be reduced to about \$10. This can be first distributed in the local market and by analyzing the progress we can decide at what time that we should introduce it to the international market. So after few years we will be able to introduce our product to international market. And also we can advance our product using the superb, costly materials and sell them to a small niche market apart from our usual target market. We can gain more profit by this. We can use social media to share the idea about our product among people because nowadays social media has become the new trend in businesses.

Technical Overview and Implementation

Mobile application - we have decided to build an android application in our prototype android studio will be used to develop the application.

Hardware – Arduino Mega Microcontroller, Stepper Motor, Rain Sensor, LPG (Propane) Gas Sensor, LDR Sensor, DHT11 Temperature – Humidity Sensor, ESP8266 Wifi Module, Ethernet Shield

User Scenario

Smith is an employee who receives a middle scale income and he must maintain his family. All his windows are manually operated. With his busy life he forgets to close his windows most of the time. Due to this he has faced so many difficulties. Most of his valuable things have been damaged due to dew and some have been stolen. He got to know about the “Smart Window” devices. He got it installed very easily by only replacing the casement stays and he bought it for a reasonable price. Now he can schedule the windows easily to open and close and he can open and close the windows even from his work place. One day there was a fire at his home and he got a notification through the app.

Team Details

Please provide necessary details of your team. All fields including photographs are required.
Please bring a valid Identity Card when attending to the event in order to prove your Identity.



[Full Name]
[NIC Number]
[Email]
[Mobile Number]



[Full Name]
[NIC Number]
[Email]
[Mobile Number]



[Full Name]
[NIC Number]
[Email]
[Mobile Number]



[Full Name]
[NIC Number]
[Email]
[Mobile Number]



[Full Name]
[NIC Number]
[Email]
[Mobile Number]