

EN 3023 – Electronic Design Realization

Activity 2 : Reflections on S2 Project

1. Validation of the product ideas

We had 2 product ideas

1. Automated home light and security system - Nowadays, households are concerned about energy-efficient and handy products. Our product is a 2 in 1 option which contains both lighting and a security system.

Features we offer,

1. When someone comes near outside, lights automatically turn on at night. It informs that the light is on. So, consumers can notice someone there. Consumers can change the setting of the controller to different types of modes. Therefore, the user can manually control the security, turn on lights using the remote control.
 2. This can be implemented especially based on the availability of natural lights. This product can be mounted on the top of a gate or a door as per consumers' requirements.
 3. Environmental signals are misled by the motion sensors. So, only human gestures are identified.
 4. Waterproof enclosure with high rigidity.
 5. Consumers can control the operating procedure according to their requirements.
2. Water quality measuring system - In this idea, the main concern that we tried to address was to improve the quality assurance process of drinking water. This is a major issue from households to large water-consuming industries but from our side, the major challenge we had was the lack of knowledge on chemical engineering aspects of this particular area.

2. The business case for our product

- Initially, we are planning to manufacture 300 units per month.
- With the increase of the market, we are planning to extend the manufactures up to 1500.
- People will buy the product at a cost of Rs.6000.00.
- We hope to earn a profit of Rs.500.00 from each unit.
- The allowable cost for a single unit is approximately Rs.5500.00.

3. Design decision

• Product use cases

Our product can be used especially in all houses. Further, this product is applicable for small plantations and medium-scale workshops. Therefore, we used a water-resistive motion sensor and tried to design a waterproof enclosure to fulfill the requirement of the outdoor usage

• Look and the feel of the product

In our product there are 3 major parts

1. Main control unit
2. Sensor unit

3. Remote controller

We used a separate main control unit which has to be installed in a safe place since this is a security system.

The sensor unit was designed to be waterproofed then there will be no effect from the humidity level and rain on sensor readings

The remote controller is a small device that can power up the system.

- Materials used

For the enclosure, we used a 3mm Acrylic plastic.

4. The weakest area of our product and design

Waterproofing of the product was the weakest area of the product. Due to this reason, the assurance of the product to be used in most environments has been reduced which reduced the reliability and marketability of the product.

Group No : 08

Group Members :

- G. D. Udugamakorala - 180655K
- R. M. Pethangoda - 180472V
- N. Vitharana - 180672J
- A. W. T. Udara - 180650P
- G. D. O. L. Thilakarathna - 180642T
- R. G. H. V. Rathnayaka - 180529E