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**PROSECHE**  
SMART, SAFE

**TECHNOLOGY BLUEPRINT:**

**SIGNAL CONVEX MIRROR**

**(by Proseche Sdn. Bhd.)**

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## 1.0 EXECUTIVE SUMMARY

Road accident is a common issue that keeps increasing on each day. There is various of reason that contribute to the collision of cars. Apart from the weather or road condition, one of the main reason of road accident is the drivers' behavior that one of it is speeding. In order to overcome the accident problems causes by these factor, Proseche Sdn. Bhd. introduce Signal Convex Mirror as an improved product from the current convex mirror available in the market. The product is completed with the presence of convex mirror with built-in led light, speed gun that comprised with Doppler sensor and also LED wireless controller since the innovated product has feature of giving signal once harm detected.

A thorough research was done in order to identify the target market of the product. The major customer for Signal Convex Mirror is local government (Pihak Berkuasa Tempatan) that responsible to road management in Malaysia. Since convex mirror is essential as an equipment on road, the installation process is done by local government which the work sector is related to road and traffic safety. In order for the product to be known by target customer, the manufacturer's representative is responsible in introducing the product also attract customers.

There are many advantages from the production of Signal Convex Mirror. the main feature of the product is the added technology in the function of the product. The current existing convex mirror is to give wider view for road user but with the new feature on the mirror, the product is use as an alarm for road users. With the installation of the Signal Convex Mirror, road users especially drivers are able to take early precautions to avoid collision with vehicles that violated the speed limit on the road. The advance technology in the product increase the value of the product and is more useful to target customer and end-user.

In the first year of being in the industry, 10% from the total market share is the estimated market share for Proseche Sdn. Bhd. since the company is fresh in the industry. The company is expected to have increment in the market share within three years in the industry. As for the first company product, the pricing strategy is based on cost-based pricing. 62% of the cost product is added into the total cost which summarize the profit gain by the company from one unit of the product. As for the management team of Proseche Sdn, Bhd, seven important person play the main role in managing the company. From the main staff, there are four shareholders in the company which are chief executive officer, operation manager, financial manager and marketing manager. The company get professional help before establish the company which are financial advisor, banking advisor and legal advisor in order to ensure a smooth business operation.

## 2.0 PRODUCT OR SERVICE DESCRIPTION

### 2.1 Product Description

Signal Convex Mirror is a product idea generated by Proseche Sdn. Bhd. Proseche company focus on producing product that helps user road user in order to increase safety on road. The word 'proseche' is inspired from Greek word which Proseche means 'watch out'. As from the meaning of the word, the company aim to invent product that can help road users to be more aware of the current situation on the road. Hence, the product called as Signal Convex Mirror is produce.

Idea of implementing the sensor and built-in signal light technology is from collision incidents at crucial location with high possibility of risk such as intersection or sharp corners at concealed driveways. The features of product are completed with the presence of convex mirror with built-in led light, speed gun that comprised with Doppler sensor and also LED wireless controller since the innovated product has feature of giving signal once harm detected.

The concept of the innovation is to provide one solution to the problem of lack or limited visibility at high risk area and blind spot for road users. The existing product does not seem to have disadvantage in term of its function and usage. The function of the convex mirror is still the same which give wider view for road users at limited visibility area. However, in order to improve and increase safety on road, few improvements especially on the feature of the products are made.

The convex mirror that available in the current market is innovated with new feature which is readily built-in led signal light. The first improvement that can be seen clearly in the special feature is size of the convex mirror which is 1200mm that give a better view and eliminate blind spot for the users. The material of the convex mirror is polycarbonate which have high resistant to weather that it can stand and function even in a heavy rain or extremely hot weather.

The next improvement is added on signal light which readily attached on the mirror as a sign of alert. The existing convex mirror helps road users to be more aware of the road situation on the opposite side of the road. However, with the implementation of built-in light on the mirror, it helps user to give signal about possible harms or danger on the road.

The main technology in the product is the speed detector sensor that is known as Doppler sensor. The sensor detects speed of vehicle on the road few meter away from convex mirror. Speed of vehicles on the road is detected by speed gun that operate using Doppler sensor which apply the Doppler effect concept where the sensor detects the speed of vehicles that violated the speed limit. Based on the concept testing conducted during new product development process, it is decided that the best distance to detect the speed of car is 100 meter away from risky places The next technology is the LED wireless controller that control the color of warning light. It also receives signal from the sensor about the vehicle that might bring harm to other road users. Details of the product is as shown below.

## 2.2 Application of Product

Signal Convex Mirror is a product that is improved from the current existing product. After a thorough study about the function and flaws of the current existing convex mirror, some new features and technology is added to the products to increase the value and advantages of the product. The obvious differences of the innovated product with the current product is the size of the convex mirror. The new product is larger in size which is 1200mm that helps give a better visibility for the users. Normally, the largest size of convex mirror is 1000mm but considering that the signal light will take few space of the mirror, thus the new product will be invented in a larger size. The material used for the convex mirror is polycarbonate that has a strong quality which able to withstand vandalism and weathers, not easily breakable or get rust but able to give a good reflections of objects.

Besides, the convex mirror use built-in led light as signal to alert road users about incoming harms either a car with over speed limit on the road that might cause accident to happen. The light has two distinct colors which indicate different meaning. The color of the light is green which means safe and no harms few meter away from the mirror while red light show that there is dangerous vehicle that violated the speed limit on the road. If there is no harm detects, green light stay lights up. However, once there is danger detected few away from the place convex mirror installed, the red light change from green to notify about the danger. As the convex mirror is installed at risky area such as sharp corner which is the limited visibility area, the light act as alarm to road user to be more alert such as vehicle with over speed limit that might cause collision to happen. In comparison with the current existing convex mirror in the market, the convex mirror is comprised with sensor technology. The product use speed sensor detector to detect speed of vehicles on the road. The speed or motion of vehicles on the road is detected by speed gun that operate using Doppler sensor which apply the Doppler effect concept where the sensor detects the speed of moving vehicles. The sensor act as a detector that detects every speed of vehicles on the road. The vehicles that drive with high speed that exceed speed limit is the harm detected by the sensor and it will send the information to controller that control the light changing color. The detector is high reliable and weather resistant that able to detect speed in any condition.

Apart from that, the innovated convex mirror is connected with controller that control the changes color of the signal light. The crucial part of the product is the controller that act as the 'brain' of the system where it controls the changing color of the signal light. Once the controller receives signal about harms on the road, it will control the light on the mirror to change color as to notify other road users such as drivers. After the controller receive signal from the speed detector sensor, the light changes from green color to red color which means danger. After the dangerous vehicle is out of sight from the mirror or the road is certainly safe from danger, the color changed back to green. The signal light help users to take early precautions if there is danger which is vehicle with exceed speed limit detected on the road.