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**SAFER CONVEX**

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## 1 Executive summary

### 1.1 Description of The Business and Product Concept

Our company innovation product is come from existing convex mirror. The idea of conducting this project it to help the responsible party to the maintain the safety of the road users and to reduce the accident rate in Malaysia especially at the blind spot. There is several feature that we improve for the convex mirror. One of the features is the technology. We are using an advance technology of microwave Doppler radar as a sensor. Next, the solar street light which function as the warning light. This light is an eco-friendly light since it using solar energy instead of electricity energy.

### 1.2 Target Market and Projection

The target market for this project is the responsible party that ensure the safety of the road users in Malaysia. They are developer, Jabatan Kerja raya (JKR) and Majlis Perbandaran for every country. This is because our main focus is to improve the outdoor convex mirror.

### 1.3 Competitive Advantages

Our product is the first product of innovation for convex mirror in the market. It gives a lot of advantages as there is competitor at the beginning of the product introduce in the market. The price of this convex mirror are very affordable as it along with features that the Safer Convex have.

### 1.4 Profitability

The selling of the Safer Convex is expected to start at the begging of year 2021 and our target market growth within 3 years from 2021 until 2023

### 1.5 Management Team

Safer Convex consists of 8 main roles in the top management. Each role has contributed certain amount of capital which are HR Manager, Production Manager, Marketing Manager, Financial Manager, Operator, IT Manager, And Quality Control. Each role has its own responsibilities where all manager and staff are required to handle and manage the operations of the department wisely.

## 2 Product/Service Description

### 2.1 Product Description

The Shazlia Sdn Bhd was established based on the idea that comes from technology used for this product itself where Microwave Doppler Radar (MDR) technology would provide convenience to road users. Besides that, it has been deciding that the product of Convex Mirror with Warning Light as Safer Convex since the technology used is operated using light effect.

Convex Mirror with Warning Light is an improvement from existing convex mirror by providing a high technology performance that can be very useful for road users. In this product, the outdoor convex mirror with the size of diameter 80cm would be used. This convex mirror not only providing the technology but also the new improvement where the warning light will attach to with convex mirror. This warning light will use the solar energy as the main sources of electricity therefore it will also help to save the earth.

The innovation was made based on the opinion of several respondents thru a survey. Most of the respondent stated that the existing convex mirror are not really helpful for them especially those who have experience an accident due to the blind spot. Therefore, the initiative of improvement of the convex mirror has been made. Safer Convex will help the road users by give warning thru the warning light for any vehicles that come from both directions.

### 2.2 Application of Products

The product is made up by using outdoor convex mirror with diameter of 80cm. The technology used to make this product is microwave Doppler radar. A Microwave Doppler Radar is a specialized radar that uses the Doppler effect to produce velocity data about objects at a distance. When it detects any movement, the microwave will be bouncing the signal to the controller to activate the solar lamp as a warning for both directions.

Material use is the best high quality of stainless steel. Stainless steel has been chosen for the pole due to its strength, flexibility and resistance to corrosion. This will make the pole difficult to bend if violated or rust for a long term. As for the mounting bracket, the material used is galvanization steel which help to prevent the mounting bracket from rust. In this product, mounting bracket use to attach the pole and the convex mirror.

The convex mirror with diameter of 80cm which the viewing distance is up to 30 metres from the convex mirror. This is the most suitable distance for the sensor to send the signal into the controller. The surface of convex mirror is made by polycarbonate because it virtually unbreakable with good reflective properties.

The special feature for this product is an eco-friendly lamp which is a high quality solar street lamp. The lamp is 100% used solar energy as main sources for replacement of electricity energy. Its panels solely dependent to the sun hence elimination carbon footprints contribution. The solar panel can store about 10-90W mono or polycrystalline with high conversion efficiency. The LED light for this lamp are waterproof material which make the light long lasting and the type of storage battery for solar energy is valued-controlled and sealed maintenance-free gel storage.

The calculations on the price of Safer Convex that will be sold are made based on the estimation of the material used and the production process for a set of Safer Convex. Based on the calculation, the estimated price for one set of Safer Convex including delivery and installation fee is RM 2, 800. The price is considered as reasonable with the technology innovation of the product used.

### 2.3 Unique Features of the Product

Criteria	Existing Product: Convex Mirror	New Product: Safer Convex
Performance	<ul style="list-style-type: none"> <li>- Convex mirror only reflect the image of the car from both side.</li> </ul>	<ul style="list-style-type: none"> <li>- The performance of Safe Convex is measured by its ability to give awareness or warning to road users to regulate car speed limit at blind spots in case of there is cars from opposite direction.</li> <li>- The light will automatically turn on to give warning to road users when there is a come from opposite direction.</li> </ul>
Reliability	<ul style="list-style-type: none"> <li>- Easy to use the convex mirror</li> </ul>	<ul style="list-style-type: none"> <li>- Road users just need to focus on the light if the convex mirror does not help especially during rainy day. The warning light would be more helpful.</li> </ul>
Safety in use	<ul style="list-style-type: none"> <li>- The existing product only provide convex mirror.</li> </ul>	<ul style="list-style-type: none"> <li>- Safe Convex focus on the safety of the road users. This product may have lower risk of harm and safe for users as it made up from safety materials and features.</li> <li>- Besides that, it would be more safe to use since the Safer Convex not only provide convex mirror but also warning light</li> </ul>
Durability	<ul style="list-style-type: none"> <li>- All materials use are made up from safe elements but the warranty provides only for 2 years.</li> </ul>	<ul style="list-style-type: none"> <li>- Material of convex mirror are made up using polycarbonate which is unbreakable.</li> <li>- All the material uses are waterproof.</li> <li>- All the material including warning light provided with 5 years of warranty</li> </ul>
Special Features	<ul style="list-style-type: none"> <li>- Convex mirror come up will difference size of diameter of the mirror.</li> </ul>	<ul style="list-style-type: none"> <li>- As for the warning light, this product used a solar energy as the main source of the electricity of the light.</li> <li>- Controller receive signal from sensor to control the light on the mirror.</li> </ul>