

	<p>Grade Boundary: Low Excellence</p>
<p>1.</p>	<p>For Excellence, the student needs to undertake comprehensive brief development to address an issue within a determined context.</p> <p>This involves justifying why the specifications allow a judgement of an outcome's fitness for purpose in the broadest sense.</p> <p>This student has developed a brief for a one-seater Drift Kart within the context of affordable and enjoyable methods for practicing essential driving skills.</p> <p>Not seen in this exemplar is evidence of the establishment of the issue, need or opportunity, and explanation of related context considerations. The student has also reflected on views of key stakeholders and the context considerations throughout the evidence.</p> <p>The student has justified why the specifications allow a judgement of the outcome's fitness for purpose in the broadest sense (1), including:</p> <ul style="list-style-type: none"> • consideration of the outcome's technical (2) and social acceptability (3) • sustainability of resources used (4) • determination of life cycle, maintenance (5), and ultimate disposal • health and safety (6). <p>For a more secure Excellence, additional evidence of ongoing reflection of context considerations is needed, including the social and physical environment where the outcome will be developed.</p>

① Conceptual Statement

I am designing and constructing a one seater ride on drift kart for teenagers which will be powered by an electric battery. This project comes under the “Automobiles and Transport” category for the context exploration in this assignment.

The issue drawn from this context are that existing product for one seater ride on cars are expensive to purchase and maintain, they do not use environmentally friendly materials, they are not made to last a long time, they are not too safe for teenager to use, and there is little to no space to store one seater ride on drift karts in many households.

The outcome I will develop will be targeted towards teenager without any means of transportation around their neighbourhood. I believe that the customers of this product would be parents of teenagers who are under the legal age for driving a vehicle and who children want so kind of mode of transportation and having the excitement of driving.

By producing this prototype, I will provide adolescents with another form of transportation that they can use which is affordable, fun and long lasting, and in which they can learn about the importance of road safety.

The controlling aspect of my kart will be simple and easy to control as there are only three main controls which include the steering wheel, the accelerator, and the handbrake. Some safety considerations I have taken into account to ensure that the rider is safe is for the rider to always beware a safety helmet to protect them from head injuries, have two over the shoulders seat belts which are adjustable, have a sturdy steering wheel, and a strong gripped accelerator.

The project will be constructed in accordance with correct codes of practice and the end user in mind. I am designing and construction a one seater ride on drift kart to fulfil the need that existing solutions are too expensive for parents to purchase for their children and the repair or replacement for broken or faulty part is quite pricey. Additionally, through this prototype, I will spark an interest in young mind about how automobiles work and the basics of road safety. I believe that it is important that a prototype be developed for this need because as depicted by my stats in my context exploration, a majority of road accidents happen inability to maintain control of their vehicles at higher speeds, typically ranging from 50 to 70 km/h.

This drift kart will be able to carry up to 60 KGs of load while riding at the maximum speed of 23 km/h. My project will be no larger than length 1m X width 0.6m X height 0.5m and will have good traction which will allow for it to be able to operate on smooth, straight and dry surfaces. This drift kart will be suitable for the environment it is being ridden in as it will not impose on nearby pedestrian’s personal space, and it will not harm the natural and manmade environment around it.

I believe my stakeholders would want to use this product because the current versions of this product are too expensive, do not have adequate safety features, and have performance issue. My product will be operating in controlled environment, which is quiet, has no public located in the area, and has smooth paths to ride on.

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While the product is not in use, it can be easily stored in a garage or a shed. Some of the social implications of producing this prototype are that this product may be obstruction in the way of pedestrians if used on public footpaths, the LED under glow lights may cause discomfort to people with photosensitive epilepsy, and people who are below the average height may not be able to use it.

Some considerations I need to make to ensure my outcome is successful is to get stakeholder feedback along the way and asking them on how I can improve my processes. Also I need to take into account the time frame for a project like this and I will need to set timed goals to make sure that I am on track to creating a successful product.

The main function of this prototype is to transport teenagers around their neighbourhoods. The life cycle for my product after it is done being used will look like this: All of the electrical components which are in good condition can be recycled and used in other projects which may require them, all the mild steel components which have been welded in a manner which can be easily disconnected can be recycled for other future project, and all of the spray paint on the materials can be sanded off. My product will be maintained by having a polyurethane finish for it long lasting, having an easily replaceable rear wheels, and having a easily accessible charging point to charge the drift kart battery.

6. Must be straight forward to weld

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6. The drift kart must be easy and straightforward to weld as welding is a big part of this project and the joints for the frame should be easy to connect to each other in order to create a strong, durable and long lasting frame. An easy to weld project allows for less complications and less chances of injuries. A more complicated project can lead to more chances of difficulties and injuries. If the project is too complicated to weld, the welding aspect of this project can be done by a professional with more experience than me. This will decrease the chance of injuries and will protect the manufacturer of this project form harm.

5. Must be ridden in controlled environment which is quiet, has no public located in the area, and has smooth paths to ride on

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5. The drift kart must be used in a controlled environment which has smooth surfaces with bends with large radiuses so that the user can have the best and most comfortable experience while riding on the drift kart. If the drift kart is been driven on rough and bumpy surfaces with potholes, loose rocks, and uneven surfaces, the user will not have a pleasant experience while riding the drift kart as their experience will be uncomfortable, and painful.

15. Must have bucket seat

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15. This drift kart must have a bucket seat so that the user is comfortable while using this product. The purpose of the bucket seat is to provide safety and comfort for the user while they enjoy driving the drift kart. This safety and comfort can be achieved by the indent in the bucket seat which restricts the user's movement while riding the drift kart. The bucket seat which has a 58 degree indent, is made from durable plastic, has foam padding, and is 31.5 cm by 50 cm.

Specifications

10. Must have LED underglow lights for night time riding

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Justifications

10. The one seater ride on drift kart must have LED underglow lights for night time riding. If there is no source of light for the incoming public, the pedestrians on the footpath will not know that there is an drift kart coming their way and to avoid it.

11. Must have a be spray painted with high quality spray paint

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11. The drift kart must be visually appealing for the end user. A nicer looking drift kart will cause the user to regularly use it and to have more fun with it. If the drift kart was not visually appealing, the user would be sceptical of using it in public as they could be afraid of the judgment from others. Spray painting the drift kart also gives the drift kart character and allows the manufacturer and user to express their personality to society.

16. Must have a powerful rechargeable battery

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16. The drift kart must have a powerful battery which is rechargeable in order for the user's experience on the drift kart to be enjoyable, long lasting, and as powerful as they would like. A power rechargeable battery for a drift kart is important because the batteries are what power the electrical motors to function at all. Without batteries, there would be no source of energy or fuel for an electric drift kart to work. The ideal battery for a one seater ride on drift kart is a 12V 5.5AH rechargeable battery as it is capable of allowing the drift kart to reach speed of up to 23 km/h for a long period of time. If the battery used to power the drift kart is not rechargeable, the carbon footprint of this project would be quite large as every time the battery ran out of power, they would need to be discarded and new batteries would be needed to be bought so that the drift kart would be able to work.

12. Must have a polyurethane finish

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12. The one seater ride on drift kart must have a polyurethane finish. This type of finish allows metals such as mild steel to not rust overtime, it provides a smooth finish for the material, It prevents water, oil, and grease from have a negative impact on the material, and it also prevents the material from overheating due to extensive uses and perves the material from becoming scratched. If polyurethane was not used for the finish of the mild steel, the product would be less desirable for the use, so they would use it less.

7. Must be well build and long lasting

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7. The drift kart must be well built and long lasting in order for the product to be used for a long period of time without the materials losing their structural integrity due to the weight force they will output onto the frame of the drift kart. The more high quality materials the one seater ride on drift kart is made out of, the more longer the main structure will last. This will result in the end user having peace of mind regarding the build quality of this product.

The safety aspect of my one seater ride on drift kart is crucial important as the rider of the drift kart needs to be protected from injuries while riding. On existing models of one seater ride on drift karts, there are little to no safety features in place to keep the rider safe. The only safety element manufactures have considered are creating a metal frame around the seat, hand brake, and steering system. This frame stops the user from slipping off the seat and rolling on to the ground. However, there is no features that keep the ride from leave the seat unintentionally such as a seat belt. To make my rider's experience safe, I will install a double strap over the shoulders seat belt which is able to be loosened and tightened to the users satisfaction. This double strap over the shoulder seat belt allows the rider to be the most secure in my drift kart. Additionally, I will include a compulsory half face helmet for the user to use while riding on my drift kart. This helmet will have a clear polycarbonate protection shield which protects the rider's eyes and face from dust particles and small pieces of flying rocks coming in contact with they user's face.

