**Results**

Design an autonomous vehicle that carries and delivers a payload of three spherical balls from the start of the track to the end zone.Our design must satisfy the constraints of size, power consumption and cost, be build using readily available materials and maximise speed while minimising weight.

**Reflection**

Consider how your thoughts and ideas about the project have developed during the problem statement phase of the design project. Include the following headings in your reflection of the process.

**My original problem statement**

What I originally think problem statement is that list the problem we are facing and the steps to create the final design object. Moreover, the problems can be roughly and even have no help to the design.There is no concept of what problem is and just thought we should make the object looks like its picture which no constraints and rules.Furthermore, the only objective is make three balls jump to the lower part.What I was thinking is use it own inertia and calculus height and original velocity to make it jump to the end zone.However, the problem is the dimensions can not be changed so it is impracticable. Moreover, the stopping area is fixed. Using the inertia has a low rate of success. And there is another issue need to figure out, that is because of the inertia balls cannot stop by themselves.Other minor problems are what kind of material we should use, how to get less cost.

**Team problem statement refinement process**

During the team discussion, at first, we started with a couple of words, which is some basic direction of the design. For example, fast, safe, spend less, dimensions, using light materials, etc.After exchanging what we came up with, we did a brainstorm and keep some really important and essential parts and drop some irrelevant consideration. For instance, safe it not such a necessary condition, and dimensions is not a problem because we cannot change it.Therefore, some points are no longer be considered. Then, we were thinking about the keywords in details, and make it specific by exchanging everyone's understanding of what this problem will affect the result and how to solve these difficulties.And we have a basic understanding of what we need to do.Finally,we settled a precise problem statement.

**What I learned about design and teamwork**

I think our team will think first and spare no effort to work it out. However, the help of tutor is necessary and important.And we can use google search to broaden our thoughts if we meet some really tricky problems. Moreover, we can ask other teams if they want to share their ideas and experience. What I learned from this experience is we do not have to solve problems directly. Instead, the proper way is thinking step by step.The problems should be figure out from little thoughts to some specific ideas. Brainstorm is also useful, and it can improve the efficiency of designing.The most important thing is cooperation, different people come up with different ideas and from the different point of view, which makes teamwork more meaningful and design with less missing aspects.Furthermore, do not afraid of exchanging ideas.No matter is meaningful or useless.