



University of Bahrain
College of Engineering
Department of Mechanical Engineering

2020/2021
Second Semester

Building and designing a rolling barrier safety system

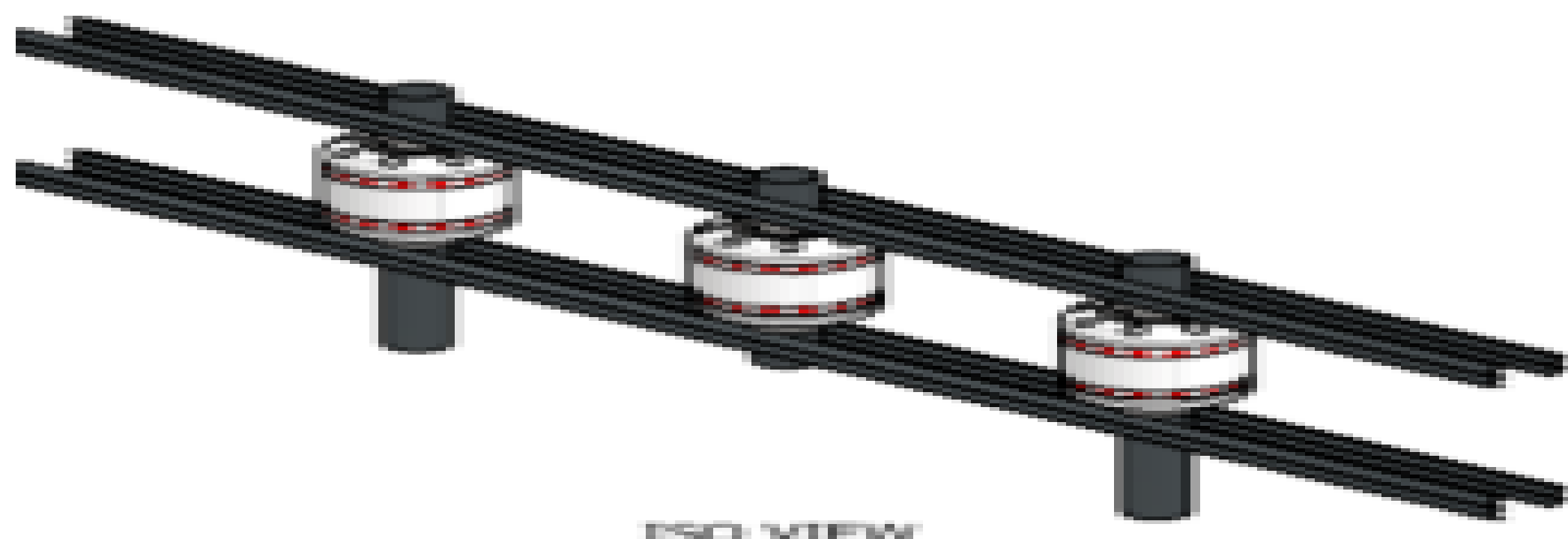
Abstract

This report discusses the construction and design process of a rolling barrier safety system for public roads and highways, which is a preventative technology aimed at improving the safety of road users as the number of cars and traffic increases at an alarming rate, hopefully saving lives, a questionnaire was carried out to investigate the general viability of our project. The results were very positive

Design and Implementation

Design is critical before beginning any job in order to make it easier. First, gather all of the information you can about the parts, including their dimensions. After that, perform calculations such as stress analysis. There are other engineering design tools available, but we like to work with Autodesk Inventor because it is simple to use and we are familiar with the software from our time at Engineering Graphics. There's also a force and fatigue analysis. The roller, seat, PVC Pipe, long pipe, barrier, short pipe, bolt, and reflective strip are the eight parts. To determine the appropriate size for the roller, we take measurements on the road using a real car. For some pieces, we also use conventional dimensions.

We now have a clear vision to begin working on the project in the workshop, using the Autodesk Inventor drawings, when we finish our design drawing. Finally we have done some equation for turning and drilling process.



Conclusion

The project is directed at enhancing road user safety as the number of vehicles rises at an astounding level. This will be a very effective achievement because it will help to prevent injuries caused by accidents as well as reduce the probability of the car being scrapped and used less. Therefore, it will considerably reduce the expense of accident repair since these rollers will be utilized on motorways and other risky routes where the likelihood and expectation of an accident are high.

Objective and Motivation

The major purpose of our project is to protect drivers' lives on the roads of Bahrain, as well as to make them feel safe when modern protection barriers are there. As engineers, it is our mission to serve the community.

According to the World Health Organization, around 1.3 million people die each year in traffic accidents. Every day, about 3700 people die in car accidents around the world. Road traffic accidents are responsible for 23% of all injury deaths globally.

According to traffic studies in Bahrain, road accidents occur and grow in general among young people (25–35) years old, with an estimated 300–350 incidents in the year 2017. Furthermore, the number of deaths documented by the MOI specialized in the traffic department in 2018 is 36, compared to between 300 and 290 in 2017. In addition, the public prosecution reported in 2020 that the number of deaths had grown again this year to 56, with children and women making up the majority of the victims, and that the number of accidents had increased again in the same year.

Results

At the end of the investigation, we found that our project depended deeply on our mechanical knowledge, but some points required basic knowledge in civil major, so we faced some difficulties with this point, especially in this pandemic situation, because we could not search for this information easily, and we relied on the research that we found on the internet.

Our project was a success, and this rolling barrier safety system will improve the safety of the vehicles, drivers, and people inside the vehicles and will prevent disasters from occurring. We believe that most people will need this project to feel more reassured when they are driving



Student Name:

1-Abdullah Isa Zowayed
2-Muath Osama Bushlaibi
3-Mohammed Maher
Aldarabi

Student ID:

1-20174182
2-20175948
3-20177165

Adviser Name:

1-Dr. Maher Mahmood Hussein
Al Hayali