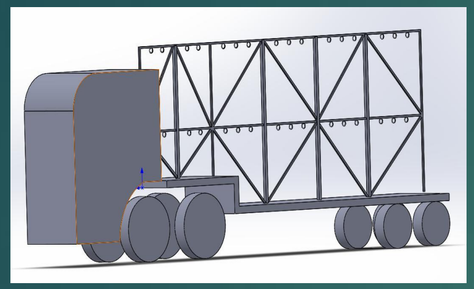
Truss Load Optimisation

3D model of the new bracket



About our bracket
The triangular structure bracket we use is more stable than the standard rectangular structure. Because of this, a harder metal is no longer required, which reduces the cost of new trucks. The bracket is also altered to take advantage of the higher part of the truck.

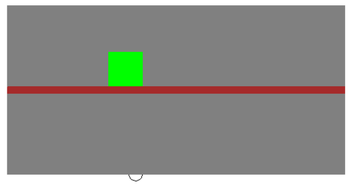
Loading the trusses
We have designed many hooks in the main part of the bracket, these metal hooks are more solid and makes it easy to remove and place materials on the truck.

How will we prevent transport loss?
Sensors will be installed in the key parts of the bracket. If the material shows signs of loosening, the sensors will raise an alarm. The driver can then check and repair before any loss occurs.

How are we going to plan the loading?
We will create software to help train new loaders, reducing the long time it takes to train them by giving them virtual training in a risk free environment. This will increase the amount of loaders at your company's disposal.

How will our software benefit companies?
It will reduce the costs of training the loaders as they won't be able to make expensive mistakes during their training. Real world laws will be taken into account considering the height, width and length of the trusses and their position in relation to the truck.

Early Development Build



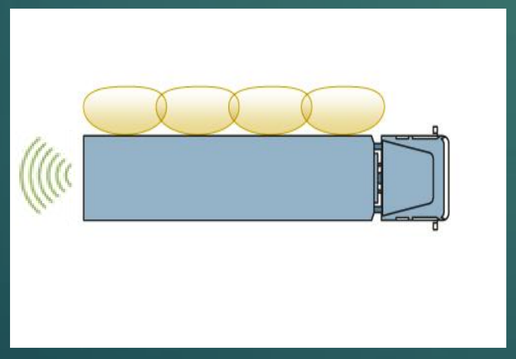
Truss Placement is critiqued

```
truss xlength
1
truss ylength
1
truss xpos
-20
truss ypos
0
fail, x origin is too far to the left
fail, x end is too far to the left.
trusses must be placed next to the bracket.
```

Truss Size Input

```
truss xlength
50
truss ylength
50
truss xpos
131
truss ypos
0
```

Sensor Position



How does this sensor work?
Ultrasonic " Reversing and Warning Alarms sensors " use high-frequency sound waves to detect objects. A receiver detects the reflected waves and calculates the distance from your vehicle to the object.

Our ultrasonic proximity sensors are connected to an alert/alarm system that warns the driver of nearby obstacles and trusses falling over with sound.

Reversing Sensor

Who are we?

Team 26 is…

Jacob Leeming	Computer Science
Jin Yang	Software Engineering
Zachary Lu	Mechanical Engineering
Mingxiang Yuan	Mechanical Engineering
Ali Alazemi	Electrical Engineering
Abdulla Aldeehany	Electrical Engineering