Degree of vehicle overloading and implication on its road safety.

[Weighing machine]

1.Introduction

1.1 Introduction/ Background:

Overloading has been recognized to be both a safety concern as well as a cost concern, and the National Department of Transport has incorporated a campaign against overloading in its Road to Safety strategy. Economic growth demands an adequate transport infrastructure. Overloaded vehicles, especially freight vehicles, are destroying our roads, impacting negatively on economic growth – the damage caused grows exponentially as the load increases. Damage to roads as a result of overloading leads to higher maintenance and repair costs and shortens the life of a road which in turn places an additional burden on the state as well as lawabiding road users who ultimately carry the costs of careless and inconsiderate overloading. If the problem of overloading is not controlled, this cost has to be carried by the road user, which will require significant increases in road user charges such as the fuel levy, vehicles license fees, and overloading fees to mention just a few. Overloading is a safety hazard that leads to unnecessary loss of life, and also the rapid deterioration of our roads, resulting in increased maintenance and transportation costs.

1.2 Details of field visit :

Date	**Time**	**Place of Visit**	**Person Interviewed**
29/07/2022	3:00 p.m	RTO	Mr.Javregowda
29/07/2022	3:20 p.m	RTO	His Subordinate

1.2 a) Field visit photo

2. Problem Identification

Stakeholders for the given problem are:

1. Government/ Administers
2. Carriers
3. Shippers/ Receivers
4. Residents
5. Private Investors

We selected **Government/ Administers** as main stakeholders because they have revenue for infrastructure maintenance and they are superior to other stakeholders.

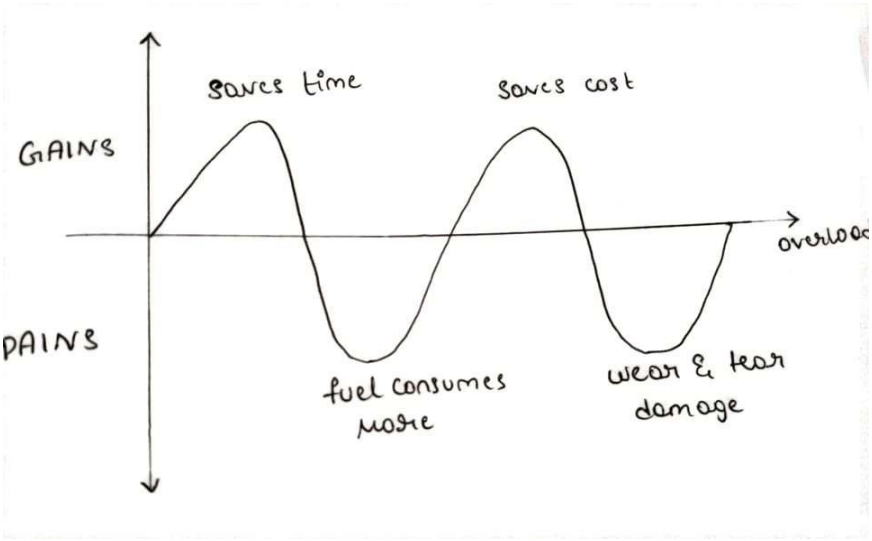
2.1 Root cause analysis using anyone of the following methods:

➢ What, Why, Who, When, Where, How analysis

5 W 1 H Analysis:

- What - What if we carry loading vehicle?
- When - When is Car / Vehicle considered to be overloaded?
- Why- Why we should not overload the vehicle?
- Who-Who is responsible for overloading of a vehicle?
- Where-Where does overloading of a vehicle pose as a threat?
- How - How does overloading cause road accidents?

2.2. Journey map



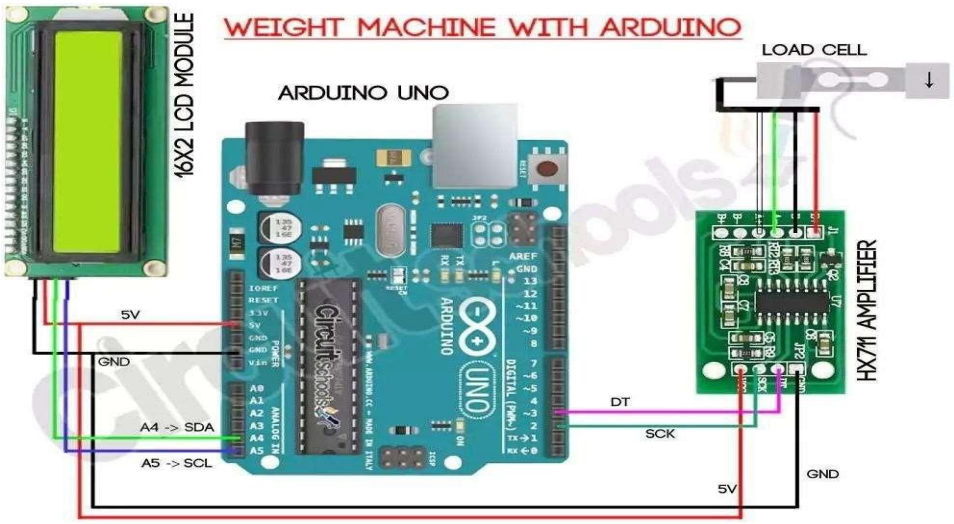
3. Solution

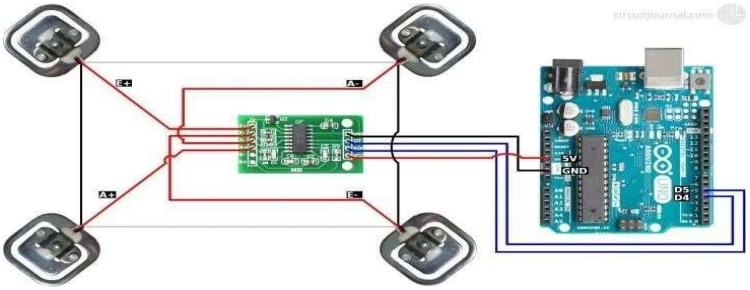
3.1 Ideation

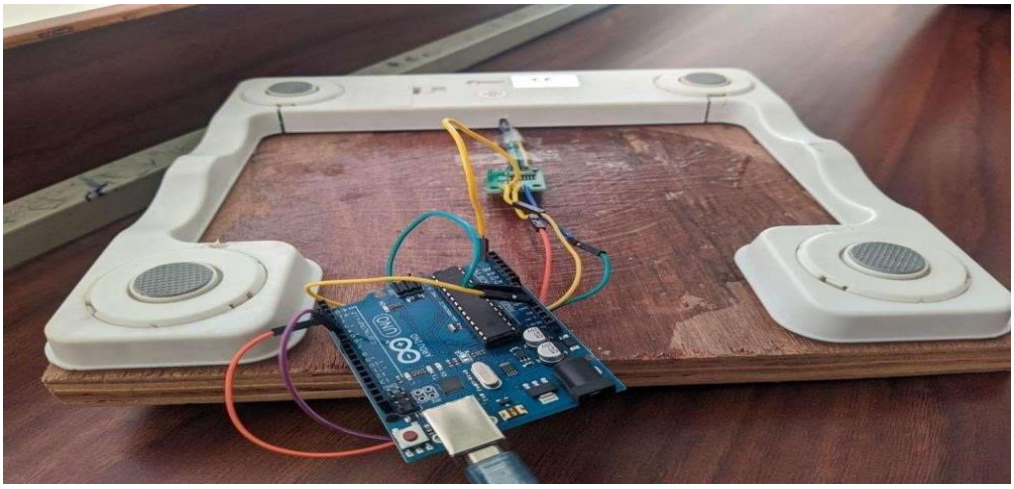
- Creating weighing in motion system

1. There is a weigh sensor which detects if the load and sends the information tocontroller unit .
2. Controller unit decides if the load is above or below the threshold weight.
3. The sensor is attached to the moving vehicle.
4. We get the weight in tons and it displayed on the screen.

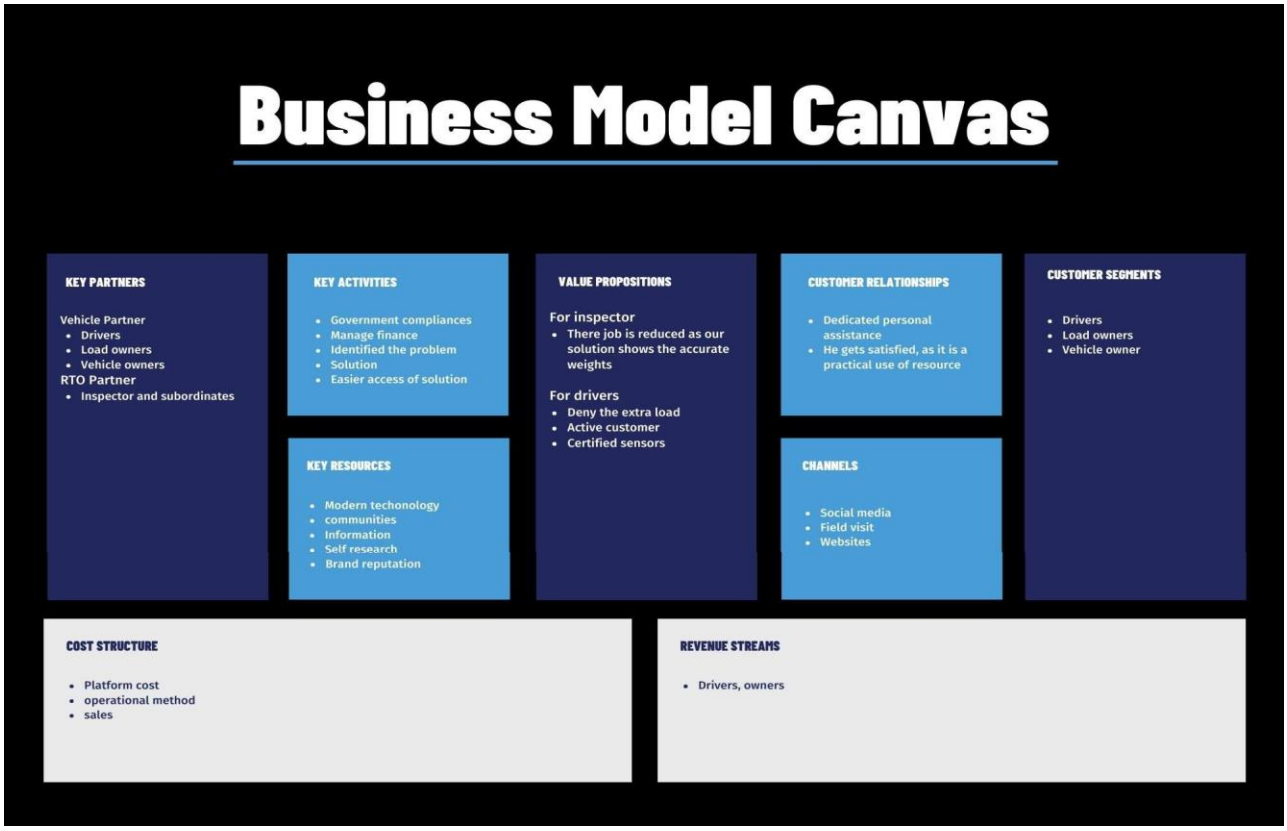
3.2 Prototype – sketches/ models/ app screens







3.3. **Business Canvas Model**



4. Implementation:

4.1 Commercial Viability / Marketability of the project

A weighing in motion weighbridge is an effective protection against infringements, and enables vehicles with overloaded axles to be instantly identified before they go on to public roads. Weighing in motion weighbridges allow a fully unattended weighing operation, whichis an obvious boost to productivity and safety.

4.2 Recommendation/ Implementation Plan

- Within 3 Months.

- It can be converted into real time project.

4.3 Implementation Challenges

Immense opportunities are present in the global market for weighbridges. Manufacturers of weighing scales are getting huge returns out of their sales.

Important opportunities:

- Rapid industrialization
- Advanced technology
- Increasing safety concern

-Cost control

-Market threats of weighbridge scales

-Increasing competition

-Technological innovations.

4.4 Future Scope

Automation is becoming the most important need of all industries. Every sector is introducing automation to reduce the manpower required on sites. A weighbridge system is a step towards automation on weighbridge sites.

5. Conclusion

Future updates on this project may help in public safety and reduces the accidents caused due to overweight

This overload detector machine will more efficiently and accurately in modern days. This also increases the durability of vehicles and also reduces the work of load checking authorities.

Therefore, as the research done by the group this overload detector machine helps in road safety.

6. Reference List

https://www.tandfonline.com/doi/abs/10.1080/23270012.2018.1474390