**PROJECT KONSEQUENCE**

**Problem Statement**

Project Konsequence aims at reducing or eliminating the following incidences (traffic offences) among motorists;

1. Overloading
2. Overspeeding or underspeeding
3. Driving vehicles with expired insurances
4. Driving with expired driver’s license
5. Drunk driving
6. Overlapping
7. Car theft
8. Driving unregistered vehicles (unroadworthy vehicles)
9. Traffic police bribery

We believe that the traffic offenses mentioned above are some of the major causes of accidents on roads, and heavily penalizing these offenses will restore sanity on the roads. When the penalty is very adverse, one will think twice before committing an offense and Project Konsequence introduces the same concept on the roads. Conventionally, taking Kenya as an example, a motorist knows that irrespective of the nature and severity of their traffic offense, they will get away with it so long as they have Kes. 50. In fact a memer once called Kes. 50 the new license to drive in Kenya.

**Exempted Vehicles**

1. All Martin Owuor cars.
2. Government top officials’ vehicles, that is, president, deputy president and cabinet ministers.
3. Ambulances and emergency services vehicles.

**Consequence**

* When a driver violates any of the items mentioned in the problem statement section, all their vehicle tyers will be punctured beyond mending. Therefore, the driver will be forced to buy new tyers every time they commit a traffic offense be it a car, bus, trailer.
* A driver can commit a traffic offense in an area as remote as Kokise Village in Rarieda constituency where the Project Konsequence hardware is not available. However, when they come to a place where the hardware exists their punishment will be enforced.
* No traffic offense will go unpunished. Once a punishment has been enforced, the system automatically resets itself for that particular vehicle and waits for the offense to committed next time.
* When a driver becomes a serial traffic offender, their driver’s licenses can be revoked.

**Business Model**

1. I Martin Owuor will own all rights to the system.
2. I Martin Owuor will lease the system to any interested government globally through its National Transport Safety Authority (NTSA).
3. No government will lease the system to other governments on behalf of Martin Owuor.
4. The government to which Martin Owuor leases the system will hire Martin Owuor as the lead system software and hardware engineer, and the lead project scientist with a monthly salary alongside the leasing fee.

**Control and Administration**

1. Each country’s National Transport and Safety Authority (NTSA) will have a full control and administrative capacity over the system without interference from Martin Owuor.
2. Each country is at liberty to modify the system and problem statements to its specification in order to meet its transport needs but ownership rights still remain with Martin Owuor.

**A Typical Display Screen for Overloading**

Konsequence: NO

Apparent Weight: 1.9 Tons

Base Weight: 2.5 Tons

Reg. No: SCCJ 1068

Make & Model: F. Ranger

**Konsequence Working Principles**

Project Konsequence platform features three traffic lights; red, green and amber which carry their usual conventional meanings in the traffic. Red to mean stop, green to mean go and amber to mean get ready. Here on Project Konsequence, we retain the meanings of these traffic lights; however, we attach them to the weight of the vehicle on the platform as well. The lighting of the lights is synchronized with the rotation of the spikes. Amber is the default light button, signifying the motorist to get ready to carry on with their journey after their vehicle has been scrutinized for all the traffic offenses. When there is no vehicle on the weigh bridge, the amber light is always on. Red and green lights mean overload and right weight respectively. In an overload situation, the amber light goes off and the red light turns on as the spikes stay erected. On the other hand, when the green light turns on it means that the vehicle’s weight is right (vehicle is not overloaded) and the spikes rotate downward to clear the road as the amber light goes off. The red and amber lights are connected to a spikes-locking mechanism (electromagnet similar to those used in doors) meaning that a driver who has overloaded cannot alight and manually manipulate the spikes. Should such a driver go ahead to intercept the magnetic lock circuitry which is hidden under the platform’s concrete then they are liable to be charged in a court of law with intentional vandalism. The project begins with combating overloading then the remaining offenses will be incorporated in the system later on.

Project Konsequence reduces or eliminates the above traffic offenses as detailed below;

1. Overloading

When a vehicle on the weighing scale has an optimum weight, then the green turns on, the amber light goes off and the barrier simultaneously rotates downward to clear the road for the motorist. However, should the vehicle be overloaded then the amber light goes off, the red light turns on and the barrier stays intact. The driver therefore has a number of choices; one to offload their vehicle, change direction or drive into the barrier and face consequences. When the driver changes direction, there is a guarantee that they are going to come across another Project Konsequence along the way in the very opposite direction. Project Konsequence system is installed such that the drive who violates the overloading rule has no way to reverse or change direction; therefore, whether they reverse or maintain their course they will have to face the penalty for overloading. Definitely when a penalty is guaranteed for a traffic offense and at the same time intense, then overloading as a cause of accidents will come into check. For commercial business vehicles, this penalty translates into loss of business and a waste of time. Such vehicle owners will have option but to comply.

1. Overspeeding and underspeeding

Project Konsequence

1. Driving vehicles with expired insurance

Project Konsequence

1. Driving with expired driver’s license

Project Konsequence

1. Drunk driving

Project Konsequence

1. Overlapping

Project Konsequence

1. Car theft

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1. Driving unregistered vehicles (unroadworthy vehicles)

Project Konsequence

**Load Cell Redesign**

Since load cells available in the market right now accept loads (weights) of maximums of 1kg, 5kg and 20kg, it implies that a load cell will not be ideal for putting in check weights of vehicles because vehicles weights are measured in tons. Therefore, from the working principle of the load cell we can design a weight sensing device. The load cell comprises of magnets (with two opposite poles facing each other) with a coil of wire inside its poles. When an object is put on the top the plate above the load cell, the load cell is bent depending on the weight of the object on the plate. This bending in turn causes the wire coils to move in the magnetic field thus an electric current is induced in the coil in accordance with Faraday’s law of electromagnetic induction: whenever there is a change in magnetic flux in a conductor, an electromagnetic force (e.m.f) is induced in the coil, and the magnitude of the induced e.m.f is directly proportional to the rate of change of the magnetic field. The induced e.m.f is minute that it has to be amplified before processing by Nodemcu esp8266. So, the weight of the object on the plate above the load cell dictates the rate of change of magnetic flux on the coil.’

In the new design of the weight sensing device, we can have something that looks as shown below.











The springs used in the construction of the weigh bridge perfectly obey Hooke’s law; the extension of an individual spring is directly proportional to the applied force so long as the elastic limit of the spring is not exceeded. In the design, the springs feature a parallel connection so as to allow the system to support substantially enormous weights of different vehicles from trailers to lorries and even personal cars. The more a vehicle weighs, the more it presses against the weigh bridge and the more the spring system is compressed. Such a compression moves the pointer further down along the variable resistor and more current flows through the resistor into the amplifier. The resulting can support the weight of any heavy commercial vehicle only the current passing through the system can be diminished in tunes picoamperes depending on the need and calibration.