

Cost Benefit Analysis for Zone Safe II vehicle based RFID control system

Introduction

The three predominant requirements of any fleet operator in the current global economic climate are:

- Safe fleet operation leading to reduction of incidents and in turn associated cost.
- Protection of company assets.
- Operational efficiency and in turn reduction in cost.

The above requirements have resulted in the growth in development of fleet management systems that can offer the fleet operator assistance to achieve these goals of '**Safety, Security and Savings**'.

Zone Safe II is a vehicle based control system that uses cutting edge, body worn RFID (**R**adio **F**requency **I**Dentity) tag technology to provide a multi functional, flexible, vehicle control, monitoring and logging solution that is simple in use yet provides the fleet operator with an invaluable tool to help achieve the above outlined requirements.

Some key benefits of the system are:

- Reduced fuel and running costs.
- Reduction in carbon foot print by reduction of exhaust emissions.
- Elimination of the risk of prosecution resulting from leaving the vehicle running and unattended on a UK highway.
- Improved vehicle security and reduction in the risk of theft.
- Limits the operation of the vehicle and associated equipment to authorised personnel.
- Logged information can be used to analyse the operation and improve efficiency.

The **Zone Safe II** system vehicle control system provides the fleet operator with peace of mind by ensuring that vehicles within their fleet are operated only by tag bearing, company trained, authorised personnel, which in turn reduces the Health and Safety risk of unauthorised operation and potential accident and injury to others, which could result in litigation, prosecution and associated substantial costs, in the form of legal fees and compensation to the 'injured party'.



In limiting operation of the vehicle to authorised personnel, the possibility of theft of the vehicle and loss of asset is reduced, once again avoiding substantial cost to the operator and providing the potential to reduce insurance premiums.

By using the system to **remotely stop and restart the vehicle's engine** with the egress and ingress of the authorised tags into the detection fields, many of our customers have enjoyed a considerable reduction in fuel consumption and therefore running costs, but in turn can demonstrate a measurable reduction in '**carbon footprint**'.

Will the overall benefits outweigh the initial purchase costs?

We are certain that they will; as a company we are committed to providing quality products and after-sales service that provides quantifiable cost savings, therefore, our answer to this would undoubtedly be yes!

Although we have accumulated a wealth of knowledge from twenty years working within all aspects of the road transport industry, every operation is unique and therefore it is necessary that we discuss in detail your individual operation and requirements. By doing this we can gain a better understanding of how we can assist you to avoid and reduce unnecessary costs being incurred and identify the real savings that **Zone Safe II** can generate.

Let us return to the issue of improved fuel consumption as a case in point, from our experience working with our customers within the waste industry, who operate fleets of refuse collection and recycling vehicles, we know that fuel consumption figures are a constant concern, with figures of as low as 4 MPG being common place.

Taking into consideration the levels of fuel consumption that are experienced, by utilising the engine control aspect of the **Zone Safe II** system to stop the engine where possible, when the crew/driver are not present and processing is not taking place, the resulting cost benefits in terms of improved fuel usage begin to become apparent in a very short time period indeed. The secondary benefit that results from improved fuel efficiency is a reduced '**carbon foot print**'. All operators are only too aware of the issue of '**Environmental Impact**' and that in time '**carbon emission levels**' will be measured and potential financially penalty imposed on those who do not meet emission standards or demonstrate a conscientious approach to reduction .



In addition to the above we must also consider other potential costs that are avoided or eliminated:

- Litigation and potential compensation payments to third parties, resulting from personal injury/damage to property caused by unauthorised or improper use/operation
- Repair costs associated with asset damage caused by unauthorised or improper use/operation
- Prosecution and resulting fine for 'Leaving a vehicle running and unattended on a UK highway'

If the direct, indirect and potential 'whole life' cost savings are quantified and considered, it is easy to illustrate that the initial outlay for the product is far outweighed by the financial savings.

The system was primarily designed with waste industry vehicles in mind, but has a 'flexible design format' that can accommodate a wide range of potential applications.

Irrespective of the given industry, the requirements of all fleet operators are same, '**Safety, Security and Savings**' and it is in light of this fact we are finding that an increasingly diverse range of operators are looking to the '**VT Zone Safe II**' system to provide the solutions.

Please visit <http://www.vision-techniques.com/rfid-technology/zone-safe-ii> to see a video of the system in action, or <http://www.vision-techniques.com/latest-news/> to find out more.

Case Study

In this case study we will focus on the topic of improved fuel consumption and provide some hard evidence to prove how the system can reduce a direct cost.

The vehicle in question, to which the **Zone Safe II** is fitted, is a **Mercedes Econic** based, trade waste refuse collection vehicle, operated by one of our municipal customers.

In this instance the system has been employed to stop the 'Park Brake' from being released once the driver has left the cab and then to stop the engine thirty seconds after the driver/operator has left the detection fields at the rear of vehicle/cab. The thirty second delay has been implemented at the request of the customer, to allow the completion of the hydraulic compaction cycle. The engine will then automatically restart when the driver/operator approaches within 4-5m of the rear of the vehicle or reenters the vehicle cab.

The vehicle is a 'single manned operation' and collects trade waste from mainly high street, retail establishments and schools. The collection process involves short periods of driving between the collection points. When a collection point is reached, the driver will exit the vehicle, walk a short distance to collect the waste bin and then return to the vehicle to process it.



In most cases the driver will not leave the vehicle unattended for long periods and more often than not it will still be within his/her line of sight.

Therefore, in this case study, the instances where the system actually intervenes and stops the engine are relatively infrequent and the increase in fuel economy is relatively small in percentage terms, but the following calculations illustrating the actual savings in monetary terms are quite thought provoking.

The facts and figures

Average monthly mileage covered by the vehicle	= 1,250 miles
Fuel economy prior to the installation of the Zone Safe II system	= 4.0 MPG
Bulk fuel (diesel) price paid by customer	= £1.00 per litre
Therefore 1,250 miles @ 4.0 mpg	= 312.5 gallons used
312.5 gallons x 4.5 (litres per gallon)	= 1,406.25 litres used
The average cost to fuel the vehicle per month	= £1,406.25
Fuel economy post the installation of the Zone Safe II system	= 4.2MPG

This equates to a saving of 5% in fuel economy

Therefore a 5% fuel saving would equate to a monetary saving of £70.31 per month, per vehicle on this basis.

If we look at the cost saving over a 50 working week year average, the total saving is £811.27 per vehicle.

We have used the above example rather than one where fuel efficiency gains are much larger, to illustrate that even a small percentage gain can represent considerable saving when put into context.

Zone Safe II Trials

Vision Techniques offers free trials and with all trials we leave a clear period of time where the operator evaluates the system in their own time, in their own environment. Of course, we are always on hand to offer advice or answer any queries but it is important for the customer to gain an appreciation of our systems in their own right.



Customer base

There are currently over 600 on road and off road vehicles fitted with the '**Zone Safe**' family of RFID control systems in the United Kingdom and our customer base covers the length and breadth of the country and continues to grow at an increasing rate on a year on year basis.

Key features

- Flexible, 'open ended' design architecture - to facilitate integration in to any vehicle to control a vast range of operational aspects i.e. engine, park brake, hydraulic systems, ancillary equipment.
- Programmable – allowing parameters to be configured to meet the requirements of the individual application.
- Modular design concept – the system can be expanded or contracted in line with the application requirements to provide coverage and protection where needed.
- Hierarchical tag system – multiple tags can be encoded into each system, with varying levels of authority for each tag, allowing selective control of operational aspects in line with tag authority level.
- Unique tag ID – each tag has it own unique identity.
- Data logging – the stored system log can be interrogated to provide an in depth, date/time specific log of tag holder activity and subsequent responses of the system and the controlled processes on the vehicle.
- 'Transparent' in operation - the system is seamless in operation and requires no operator intervention and is therefore non detrimental to the efficiency of the operation.
- Compliant with all relevant European Transport Industry standards

In summary, **VT Zone Safe II** presents endless opportunities to enhance the efficiencies of any operation, at the same time, providing solutions to protect personnel, assets and reduce operating budgets.



The evidence

The following list of web addresses relate to interesting articles and government papers that focus on some of the problems discussed and highlight their importance to any commercial fleet operator:

Safety

<http://www.hse.gov.uk/pubns/waste04.pdf>

<http://www.hse.gov.uk/pubns/waste04.pdf>

Security

<http://www.mrw.co.uk/veolia-calls-in-police-after-hgv-theft/3004074.article>

http://www.wikiwirral.co.uk/forums/ubbthreads.php/topics/352768/Wirral_businesses_hit_by_HGV_I.html

Savings

<http://www.dailymail.co.uk/news/article-540445/Drivers-paying-record-high-price-diesel--cost-rising-faster-petrol.html>

<http://www.publications.parliament.uk/pa/cm200506/cmselect/cmenvaud/981/981-i.pdf>

