

Establishment of Vehicle Accident Identification Number (VAIN) in Kuwait

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Abstract Road transportation entails several risks, including the world's deadliest road accidents. Because of the consequent deaths and taking into consideration their various consequences on social and economic life, traffic accidents and their impacts have become one of the most essential and deadly concerns confronting the community and individuals today. Indeed, several recent attempts to reduce the incidence and severity of traffic accidents have yielded positive results by studying the recorded data of past accidents. This research aims to propose a unified Vehicle Accident Identification Number (VAIN) for each accident in Kuwait based on the accident time, date, vehicle number & other aspects so that the same Vehicle Accident Identification Number can be referred by concerned authorities in the State of Kuwait. In the future this number can be the basis of a database from which the authorities can retrieve the valuable accurate information on a click.

Keywords Transportation, Traffic accidents, Accident identification number, Database

1. Introduction

The United Nations (UN) incorporated road safety into its pre-existing sustainable development principles in 2003, owing to the potentially catastrophic outcomes (such as death or injury) that occur because of automobile accidents. Since then, it has been predicted that road fatalities will rise from ninth to third leading cause of death for humans in the next decade (World Health Organization), and that road safety as a general topic has been raised by the UN General Assembly plenary sessions (2004; 2008), during which they also referenced the need to develop a new critical and unconventional necessity to take more serious actions in terms of road safety.

Indeed, the current lack of road safety has accounted for 80% of road fatalities within developing countries, even though they only comprise 20% of the total motorised vehicles. This is particularly prominent in Kuwait, as the more fatalities that occur, the more GDP decreases (the Gulf States' GDP indeed having dropped by an estimated 2.5%-4.5% because of such fatalities). Such losses can be quantified as listed below:

- 3%-4% of Kuwait's yearly GOP has been lost because of fatal road injuries.
- The nation's medical services, resources, and investment plans are drastically affected by the financial pressures generated by road accidents.

- 428 road-related deaths, 10305 severe injuries, and a whopping 71161 accidents were documented in 2017. (<https://www.moi.gov.kw/gdt/Statistics2.htm#>).

As can be seen from the above, this is a particularly pressing issue that has the potential to cast a negative ripple effect across Kuwait's economy. Kuwait is one of the richest developing countries in the world. It has an extremely high rate of vehicle ownership, and a superbly modern highway system, yet it has a very bad record of traffic accidents.

The Kuwaiti traffic police force—which, as standard, account for all traffic enforcement, data, and safety information—have reported that the way in which they have to document such accidents is insufficient in the sense that not all the necessary data (e.g., efficient classification of such accidents; any road intersection issues; the things done by the involved drivers directly before the accident; a concrete approach to establishing the specific place in which the accident took place) can be included.

This is a critical issue, because it is on this that developed countries rely on to assess such findings and, as a result, set agendas aimed at making the problem rare and limited, as well as less financially burdensome.

Furthermore, the Ministry of Interior's mainframe system does not allow for the recording of the applicable information, nor does the current methods employed to effectively define, document, and categorise such accidents efficiently. Finally, the current statistics being produced for review are not sufficient for any kind of detailed evaluation, approach reconsideration, or comparison since an efficient predicting system or uniform traffic data garnering method are not in place within Kuwait. This is also exacerbated

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3. The Proposed Vehicle Accident Identification Number (VAIN)

A police report card is generated by the investigating officer who responds to a request for assistance at the scene of a vehicle accident. The police report is a summary of information regarding the vehicle collision covering facts related to the accident. Most of the police report card contain some or all the following information:

- Date and time of the accident
- The location of the accident
- Weather and lighting conditions
- Location
- Number of passenger and their sex

The proposed Vehicle Accident Identification Number (VAIN) is a unique number that will be used to identify all vehicle accidents that occur in Kuwait, as well as the information needed to fill out a police report. The VAIN can be used in a police report, a court case report, a hospital report, a fire station report, and an insurance company investigation report. By doing so a Database can be

Table 2. Traffic Accident Report

1	9	0	9	2	5	1	5	0	7	5	4	0	3	5	S	F	2	2	0	5	K	V	V	1	0
Year		Month		Day		Time		Vehicle Plate Number							C	Accident Location					D	D	V	N	N
															T						N	L	L	P	D

The time in 24 hours format, so it needs two digits in the code, the car license number according to Kuwait state is divided to two parts the first part (dark blue) has two digits and the second parts (yellow) has five digits since the longest number is in order of hundred thousands, if the second part of the plat number has three digits for example 196 the first two digits should be double zeros (plate number 10-193 it appears in the VAIN like 1000193).

CT means car style, for passenger cars the letter S is selected, B for bus, and T for trucks and lorries.

The location of the accident is very important, according to the proposed VAIN there are five digits for the location, the first digit is a letter, this letter is related to the city, table (3) shows the cities in Kuwait state, the second digit for block, and the last three digits for street.

DN means driver nationality, K for Kuwaiti drivers, N for other nationalities, and O for others, DL means the validity of the driver license, if the driver license is valid the letter will be V otherwise it is N, the last digit in the VAIN is the vehicle license validity, if its valid the letter will be V otherwise it is N. Finally, the last two digits are NP means number of the passenger were involved at the accident and ND means the number of death if any occurred during the accident at the scene.

For other locations out cities for example in the highway, the code contains the highway number only in the digit or two digits of the location five digits in the VAIN. In Kuwait

established of the road traffic accident at the State of Kuwait collecting all information about the specific vehicle accident from all different sectors involving at this event of the accident.

Autonomous vehicles are self-guided vehicles that overcome obstacles without any help of a human driver, in case of accidents in autonomous vehicles the VAIN system will be highly useful for the complete automatic systems as just by entering a number all information related to accident can be linked with the ease thus paving in an easy way for adaption of these autonomous vehicles. Another issue of reliable identification is also very important for vehicle theft prevention in case of autonomous vehicles, the conjoint vehicle license plate identification system can be linked with the VAIN to access all the relevant data.

3.1. VAIN Code Numbering System

The VAIN consists of nine main fields, the fields are date, time, vehicle license number, car body style, accident location, number of passengers, driver nationality, validity of the driver license, and validity of the vehicle license.

the main highway road is labelled form 01 up to 85. Table (4) below shows some highways in Kuwait.

Table 3. The short name of some cities in Kuwait state according to the VAIN

City in State of Kuwait	Short Name
Al Ahmadi	A
Hawalli	H
Al Farwaniyah	F
Al Fahahil	FA
Kuwait City	K
Al Riqqah	R
Al Funaytis	FU

Table 4. Main highway road names with numbers

Highway Name	In AVIN
1st Ring road: The road runs mainly in Kuwait City and starts from near Souq Sharq and ends at Sheraton Circle.	00001
2nd Ring road: Starts at the east side of Gulf road and ends at the Gulf road port area.	00002
4th Ring road: Starts in Salmiya, runs through Shuwaikh & Al-Rai and ends at the government maternity hospital.	00004
Highway 30 & 40: Runs parallel to each other. It serves Mahboula, Ahmadi and Fintas. The road helps the residents of the towns to go to Kuwait City. Later, the road joins and heads towards to Saudi Arabia. It is used to get to Bahrain.	00030, and 00040

4. Conclusions

The purpose of this research was to investigate the recording & reporting system of road traffic accidents in Kuwait & to propose a unified Vehicle Accident Identification Number (VAIN) for each accident, facilitating an accurate database which can be referred by the concerned authorities whenever required at the ease. This number is supposed to be used in all state references regarding the accident, such as traffic department, investigation department, insurance company, ambulance, firefighting, and hospital, so that in the future, this number will be the basis of a database from which we can retrieve information by simply entering the number. The proposed accident reporting system can be developed as a unified integrated system of accident reporting in many other countries which can contribute to an improvement of road safety data analysis and research.

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