Hy-wire Technology: Artificial Intelligence Replacing Man’s Era

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ABSTRACT
The vast adaptation of modern technology in various domains and the emerging trend to use computer as a basic to key part of any development system has lead to an era called techno-computer era. The future of this era is marked with man replaced by mach-o-machine it may be favorable or vice versa but who cares, these days people follow the trend the basic architecture of development is started with its root at use of computer for development purpose. The era is marked with complete focus of whether the Hardware based or Software based industries to development in which computer is a part whether primary or secondary the main aspect difference is why? The answer is also clear that this development is promised by everlasting growth and an unmanageable profit. Earlier only the parts were operated by giant MNC’s but now it’s becoming the part of even startup firms just in the greed of short lived lucid profit.

Keywords
Hy-wire, Mounted Computer, Node to Node Communication, Node to Many Communication.

INTRODUCTION
Conventionally automobiles were equipped with a single mech-auto concept of merging the ideas and developing such a human aid that only leads to such a lavish outcome that meets the need of people and fulfilling their demands considerably. But this limited pace development stopped gaining publicity and outcome was limited to only capita-resource management. So the need arise to use the modern concept in manufacture of automobiles, the leading manufacturers started enacting the techniques so that they can prevent themselves falling from the market and holding their market share. It was this era which leads to development of Hy-Wire technology whose first outcome was lead forward by leading car manufacturer General Motors. The idea was publicized at 10th international car expo in year 2003 at Switzerland. It was at that time people started to know about the new era of vehicles. It was for the first time some vehicle was designed with use of artificial intelligence. The idea started with the use of joystick to control the movement of car but then it has certain limitations that people started falling under the spell of improper use of remote control in automobiles sometimes leading to accidents coz of the people unable to adapt the controls. This lead

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to many accidents which have to be get rid at that era so a much efficient technology was needed that technology was the beginning of this research of Hy-Wire technology. This technology basically used the main aspect of using AI systems mounted on automobile central control thus controlling the whole car same as a driver. It has sometimes privileged controller that can efficiently control the automobile.

1 LITERATURE REVIEW

The concept underlines the vast stretched mechanized of using the artificial intelligent system whose algorithm is completely determined by the schemas of the human intelligence. Lakhs of lines of codes are written and they are virtually tested on a Mac-Man environment, the concept got a ever-growing use in that era so that the Giant automobile manufacturers started using these as the prototype concepts for their new research leading to again holding their market positions along with it gaining market share considerably the development was made in steps.

Cars are immensely complicated machines, but when you get down to it, they do an incredibly simple job. Most of the complex stuff in a car is dedicated to turning wheels, which grip the road to pull the car body and passengers along. The steering system tilts the wheels side to side to turn the car, and brake and acceleration systems control the speed of the wheels. Given that the overall function of a car is so basic (it just needs to provide rotary motion to wheels), it seems a little strange that almost all cars have the same collection of complex devices crammed under the hood and the same general mass of mechanical and hydraulic linkages running throughout. Why do cars necessarily need a steering column, brake and acceleration pedals, a combustion engine, a catalytic convertor and the rest of it?

According to many leading automotive engineers, they don’t; and more to the point, in the near future, they won’t. Most likely, a lot of us will be driving radically different cars within 20 years. And the difference won’t just be under the hood - owning and driving cars will change significantly, too.

1.1 Design

Due to hydrogen fuel cell drive system used by the Hy-wire, the conventional car layout has been revamped. Without the need for a conventional engine block and transmission system coupled to the steering column and pedals through mechanical linkage, the car's power system and single electric motor are built into a flat skateboard configuration. This serves to lower the car's center of gravity, but more importantly to standardize vehicle drive train systems. Because all propulsion and energy storage systems are housed in the skateboard, designers are free to arrange the passenger compartment however they see fit. This allows for highly flexible modular vehicle configurations such as a 4 door sedan, mini-van, or even a small bus to be placed on the same drive system, with the only difference being the shape of the car's upper body and the location of seats. The skateboard itself contains crumple zones similar to those in conventional automobiles.

1.2 Driver Interface

The car's drive-by-wire system coupled with cameras instead of mirrors and multiple LCD displays for feedback to the driver theoretically allows the driver's seat to be located anywhere; however, most current designs still favor the driver in front of or beside the other passengers for maximum visibility. The digital coupling of the controls to the drive system means neither the driver's seat nor
the steering and throttle controls must be fixed in place. For example, the 2003 concept model has a single control interface that can be operated from either the right or left front seats,[2] and the 2004 concept design places the two front seats on a rotating platform which allows the driver and passenger seats to be swapped or the driver to sit in front of the passenger for greater flexibility.

1.3 Power Plant

The Hy-wire is powered by a fuel cell capable of producing 94 kilowatts of power continuously and up to 129 kilowatts for short periods.[4] The fuel cell itself is supplied with hydrogen from 3 tanks of compressed hydrogen located in the chassis. With its three-phase electric motor the 1,814 kg (4,000 lb) vehicle has a top speed of 160 km/h (100 mi/h).

1.4 Concept

We've driven the car of the future. It does not fly, it's not the drive itself, and it looks like the car instead of several machines such outrageous GM Motorama dream, finned wings, turbine-powered Firebirds of yore. This is serious, according to GM serious cash to invest ("hundreds of millions," they said) in a program that has produced 30-plus patent-to-date. The Hy-wire, which is displayed in the Paris auto show last fall, is the incarnation of a proof-of-concept that runs the concept of autonomy from 2002 Detroit show and thus offer a view of the future through the three portals. First, there is the idea of a high-value, long-lasting, "skateboard" chassis fully integrated walking, the various bodies can moor. Furthermore, there is a system of control drive-by-wire. And finally, there is a hydrogen fuel-cell powertrain. These concepts will likely arrive one at a time on a different vehicle, but the crystal-ball people at GM have integrated them here.

1.5 Implementation of Concept in Dynamic Design

Skateboard concept promises to offer low Corvettelike gravity for better handling and unlimited flexibility in packaging bodywork. A high concentration of investment mechanical chassis with the age of 20 years allowed the body to be a high-fashion item of income in the form confined by boundaries far less functional. Drive-by-wire allows the driver to sit on the right or left, feeling control can be adjusted to the driver's taste or mood, and it is an enabler for technology such as automated highways. And hydrogen-powered fuel cell, which only emits water, promised to keep the car from the debate and partly to protect the auto industry from unexpected fluctuations in the oil industry (most hydrogen is produced from natural gas in the country). That's a lot of hope packed into one 4200-pound concept car.

Snap-on body Hy-wire offers an environment, luxurious roomy for five with an open area of the front seat to the back of the nose and the tail. It attaches via the installation of 10 points (plus one electrical connector) to the all-aluminum, control-arm-suspended rolling chassis that is 11 inches thick. This package of 94-kW cell fuel, which attract hydrogen from the three 5000-psi compressed-hydrogen tank to power the 80-hp electric motor driving the front wheels. The tanks hold 4.4 pounds of hydrogen (containing the energy equivalent of two gallons of gas) for a range of 80 miles. Motors in each wheel and 10,000-psi tanks, but some improvements are expected to lead to a skateboard chassis with a six-inch-thick 170-mile range.

1.6 Hydrogen Today
Fuel cells back nearly twice the efficiency of the best diesel engines of the energy in the fuel, but the total energy input factors upstream of the tank, and the advantages of hydrogen falling to as low as 10 percent.

The current rate of production of hydrogen could power 15 percent of the transportation segment. Hydrogen is currently used: the production of ammonia, 51%, gasoline desulfurization, 45%, chemical manufacturing, 3%, other 1%.

No batteries onboard amplifier, so there is no regenerative braking. This is done partly to save weight and package space and also to illustrate that the fuel cell can generate enough electricity on demand. We are not entirely convinced of this argument. Step-off life, as in electric cars (peak torque at 0 rpm), but the Hy-wire seems to have some lag, especially when accelerating as if to pass. Order to speed up and one can hear the air compressor and control valves various hydrogen clicking the whir of the motor drive. Acceleration is 10 seconds to 40 mph relaxed.

Swedish SKF company engineered a drive-by-wire Hy-wire system which uses much of the same hardware found in the concept Bertone Filo (Upfront, November 2001), but the software is greatly improved. Grip two plays set up like an aircraft control yoke manage steering, braking, and acceleration. To accelerate, twist grip, knuckles back like on a motorcycle, press grips for braking, and steer them through a 20-degree angle to hang a U-ea.

"With Autonomy, GM shared a vision. Hy-wire accelerates our progress with a functional proof of concept which strengthens our confidence in our ability to gain marketplace acceptance of production fuel cell vehicles."

![Fig 1: Hy-Wire Design pre-Requisites](image1)

![Fig 2: Fuel Cell Implementation In Hy-Wire Design Implementation](image2)
2 CONCLUSIONS
2.1 Summary
The Hy-wire is a technology-packed futurecar if ever there were one. It won’t be produced in anything like its current form. But it does put several high-tech systems on the road for some behind-the-wheel--er, joystick--evaluation.
2.2 Future Works

Hy-wire so profoundly changes the automotive industry that GM has more than 30 patents in progress covering business models, technologies and manufacturing processes related to the concept and more inventions are being added all the time.

"Someday, Hy-wire could be displayed in a museum side-by-side with the first horseless carriages of Carl Benz or Gottlieb Daimler, or next to Henry Ford’s Model T," Burns said.

REFERENCES

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