

World premiere at the Geneva Motor Show 2005

Rinspeed "Senso" - The car that senses the driver

"The driver and not the technology should be the focal point of a car," observes the head of Rinspeed, Frank M. Rinderknecht (49), summing up the fundamental idea behind his latest concept car offering: the "Senso". Due to be presented jointly by the famous Swiss automotive design and solutions specialist, Rinspeed, and **Bayer MaterialScience**, one of the world's largest plastics producers, at the Geneva Motor Show from March 3-13, 2005, the innovative "Senso" was developed in cooperation with the experienced engineering specialist, **Esoro**. Johannes Seesing (51), who specializes in automotive applications at Bayer, says: "Together with our partners in the automotive industry, we are already carrying out research on the car of tomorrow. The "Senso" is an outstanding example of unconventional ideas and applied lateral thinking."

The "Senso", which runs on environmentally friendly **natural gas**, has, not without reason, been labeled the most sensuous car in the world. The "Senso" actually "senses" the driver by measuring his (or her) biometric data, and then exerts a positive effect on him with the help of patterns, colors, music and fragrances. A person who is relaxed and wide-awake simply drives better and more safely.

The whole project is based on an elaborate sensory system that forms the heart of the vehicle. It consists of a number of sensors that have the job of gathering data about the driver's condition. Firstly, there is a biometric **Polar** watch to measure the driver's pulse. A "**Mobile Eye**" camera records his driving behavior, in other words how well and how often he changes lane, and how close and at what speed he approaches the cars in front. Then - this, at any rate, is the vision - a **HP** board computer evaluates the data and establishes, with the aid of special algorithms, the driver's current state of mind.

The developers of the concept car speak, not surprisingly, of "Zen-sorial" – with reference to Far Eastern meditation. On the basis of the measured data, the driver now receives various impulses to his senses that put him in a state of relaxed attentiveness. The idea of 'communicating surfaces' stems from Andreas Fischer, a designer who developed the "zenMotion concept" at the Institute for Computer Sciences at the **University of Zurich** in close cooperation with the Institute for Psychology at the University of Innsbruck. The inspiration for the development came from studies by scientists dealing with the emotional effect of moving patterns on people. In the "Senso" – depending on the condition of the driver - four small **Sharp** LCD monitors emit stimulating (orange/yellow), relaxing (blue/violet) or neutral (green) color patterns into the driver's line of vision. They are integrated into the futuristically designed interior paneling, which lights up over the entire area and bathes the cockpit in dazzle-free ambient light.

It is all made possible by an innovative electroluminescent film technology developed by Bayer MaterialScience and the Swiss electronics specialist, Lumitec. This "smart surface technology" is celebrating its world premiere in the automotive industry. Johannes Seesing: "In the "Senso", we are showing what breathtaking possibilities this new technology can open up for car designers. The glowing material can be made into any shape and does not need electric bulbs or LEDs." The high-tech surface is computer-controlled and, depending on the applied voltage, shines green, blue or orange.

The optical stimuli are reinforced by especially composed sounds stored digitally on a computer. In addition to the eyes and ears, the nose is stimulated, too – by scents

developed by the fragrances specialist, **Voitino CWS**, which flow into the car through the ventilators. Vanilla-mandarin has a calming effect, while citrus-grapefruit is more stimulating. Even the tactile senses are included: should the central computer establish any symptoms of tiredness in the driver, electric motors integrated in the seat will shake him awake by vibrating.

Rinspeed "Senso" - Polarizing opinions

But the "Senso" not only has inner values. It would, after all, not be a Rinspeed if it did not have a radical - perhaps even controversial – design, too. In particular, the clear-cut, no-nonsense design of the interior puts the driver very much in the spotlight. The driver sits alone in the middle of the front row, flanked behind by two **Recaro** passenger seats covered with Italian designer fabrics from **Xmobil**. On the subject of design, the use of carbon parts in both the interior and the exterior gives the overall car a cool, technical look. The carbon components were custom-made by hand at **MP Design**.

The exterior shape of the vehicle borrows from the world of architecture, structures man has created over the centuries. As such, it creates a tension-filled dynamic between moving and non-moving objects. The two-part structure of the rear end is reminiscent of bold roof constructions and deep chasms between ranks of skyscrapers. The interplay between smooth curves and sharp edges evokes attractive industrial architecture.

To produce these contours, the makers have used a number of high-tech materials such as the fully recyclable composite for the bodywork. The striking Speedster windscreen is made of high-grade Makrolon® polycarbonate - like the rear end, which is reminiscent of the modern facade of a high-rise building. The window has a scratchproof coating and weighs little more than half as much as a conventional car windscreen. It is also considerably more break-resistant, and opens up entirely new possibilities for car designers.

A breathtaking body such as this naturally needs to be clad in extravagant accessories that are not simply available off the peg: The eggshell matt special effect finish on the "Senso", which was produced using coating raw materials developed in Bayer's laboratories, is truly custom-made and only available this once for the Rinspeed "Senso". A soft-feel clear coat of the same shade in the interior additionally provides a pleasant, soft-feel surface.

Clean performance - the power plant

The 1'385 kg lightweight "Senso" is powered by a 3.2-liter boxer engine from the Porsche Boxster S, modified for its service in the "Senso" to run on gasoline and natural gas. As a result, emissions of harmful CO₂ are reduced by as much as 30 percent. This is because natural gas is an extremely clean burning fuel, consisting almost entirely of methane with virtually no sulfur. The engine produces 250 bhp/184 kW at 6'200 rpm and has a maximum torque of 300 Nm at 4'600 rpm. A manual six-speed transmission transfers the power to the rear axle. The "Senso" accelerates from 0-100 kph in 5.9 seconds and has a top speed of 250 kph.

Optimum traction is provided by **Continental** SportContact 2 tires: 235/35 ZR 19 at the front and 255/35 ZR 19 at the rear. They are mounted on 8.5x19" **Barracuda** rims at the front and 9.5x19" at the rear.

The futuristic body sits on a chassis specially developed by **KW automotive**. It can be adjusted in terms of both height and hardness. The chassis engineers have succeeded in performing the rare feat of attaining a perfect symbiosis between drive comfort and sporty handling.

The innovative lighting technology in the "Senso" was developed by the lighting specialist **in.pro**. The eight light units awaken associations with scenes from "Star Wars" - Captain Kirk would certainly have enjoyed it, too. The intelligent **in.pro.Sat** system sends automatically an emergency call via the GSM network in case of an accident, robbery or theft.

An optional FBI Bio Drive by **Genesis Technology** with integrated finger print recognition stores all personal data of the driver and allows an individual adjustment when starting the vehicle.

Swiss made

Esoro

Concept vehicles by Esoro - we consider the extraordinary ordinary. Esoro designs, develops and implements high-quality concept vehicles from the initial idea through to the "ready-to-show" vehicles. Prototypes are fully operable and homologated so that the concept can also be experienced and driven.

An innovative and experienced team is able to handle complex projects very efficiently and in a very short time by the appointed deadline. When doing this, Esoro can fall back on state-of-the-art development tools, an excellent prototype workshop, experience from over twenty vehicle projects and a choice network of component suppliers. In its capacity as prime contractor, Esoro is the direct contact for customers and assumes responsibility for the overall project.

For the sixth time the Swiss engineering company Esoro was hired to serve as general contractor for the entire vehicle project. Esoro was responsible for project management, engineering, design, implementation of new technologies and manufacturing of the Rinspeed Senso. Esoro realised the Senso with its highly competent suppliers Schwaller (Metalworks) and Protoscar (Design).

Lateral thinking, looking at things from a new angle, thinking out of the box and feeding the senses - sight, touch, feel, smell and hearing – these are major elements of the development work that has gone into the "Rinspeed Senso". Its name reflects what it actually does. The "Senso" "senses" the driver and adjusts to him/her. This is especially important as the risk of an accident is significantly reduced, if the person behind the wheel is relaxed and wide awake.

This project also involves a sophisticated system of sensors developed by the Universities of Zurich and Innsbruck. Smart Surface Technology, a new 3D-formable electroluminescent film from Bayer MaterialScience and Lumitec, uses biometric data and other information to create an appropriate level of light for the driver, thereby having a positive effect on him/her.

gasmobil - A Strong Partner

The spread of natural gas as a fuel of choice is supported by the shareholders of gasmobil AG and local natural gas suppliers. Natural gas is a meaningful and environmentally friendly alternative fuel, which can make a significant contribution to the reduction of harmful pollutants, especially in congested urban areas. When combined with CO₂-neutral biogas, the pollution emission levels are improved significantly. The most important

arguments for natural gas and biogas as fuels: Lower pollution levels compared to gasoline or diesel; better mileage in hybrid versions and therefore also more economical, lighter and cleaner refueling; subsidies for the purchase of any new vehicle in some cantons; manufacturers' guarantees; and vehicle safety similar to all other passenger cars.

Natural gas and biogas as the fuel of choice - the future is now

gasmobil, SwissEnergy and Rinspeed - three strong partners, who develop vehicles for everyday operation and future visions for mobility. The vehicles jointly displayed are fueled by environmentally friendly natural gas or biogas.

Fuel supply - no problem in Europe

Employing natural gas and biogas means taking another step on the way to less crude oil dependence for the world's economy. The tremendous environmental potential of natural gas cannot only be exploited in static use, but also by road vehicles to reduce harmful pollution levels from soot, nitrogen oxide, CO₂, and hydrocarbons. Furthermore, natural gas motors reduce noise pollution levels compared to conventional units. These drive technologies are mature and market-tested. It is hard to find a manufacturer which does not have one or more models in its program. In addition to this, the gas station network in Switzerland and the rest of Europe is being developed rapidly. Round-the-clock supply is guaranteed.

SwissEnergy's Ongoing Commitment

Through its SwissEnergy program, the Federal Office for Energy has been promoting the use of natural gas and biogas for over 10 years. Initially it mainly supported research work. Between 1996 and 2000 SwissEnergy supported a pilot and demonstration project with "Kompogas" vehicles in the region around Zurich. Over 100 vehicles were put on the road as part of the project and the responses by users were very positive.

Meanwhile, the Swiss gas industry has been establishing a network of natural gas refueling stations and the car industry has been expanding its range of natural gas and biogas vehicles. For three years now, Gasverbund Mittelland AG, Rinspeed AG and SwissEnergy have been working closely to promote natural gas and biogas as a motor fuel. The concept cars designed by Rinspeed AG enable the public to visualize the possibilities offered by natural gas as a motor fuel and serve to dispel the prejudices against this young and clean form of fuel that unfortunately continue to prevail.

The use of natural gas and biogas as motor fuels helps to spare valuable resources and generates lower emissions than traditional motor fuels. Natural gas produces around 20% lower emissions per energy equivalent of the greenhouse gas CO₂, and renewable biogas fuel is even CO₂-neutral.

A word from our technical partners

Barracuda / Aerotechnik

Barracuda Racing Wheels - Outstanding Designs

Barracuda's alloy wheel program presents itself in new and unmistakable designs with fresh and trendy colors. Many individual finishes as chrome, dark, light and shiny silver and outer ring bolt colors are offered.

The basic idea behind every Barracuda product is the uncompromising sportiness, expressed in the very modern stylistic idiom.

The ingenious Japanese American designer Ichiyanagi Satoshi is responsible for many of the creations. He sets lasting trends in the world of alloy wheels in the recent past.

The Voltec T5 wheel shows the uncompromising sportiness of the classic Cup wheel paired with the cool elegance of sparkling chrome. The open building method makes the wheel light weight and shows off the technology of the brakes.

Bayer MaterialScience

Bayer MaterialScience: One of the world's leading polymer companies

With 2003 sales of around 7.5 billion euros and approximately 18,000 employees worldwide, Bayer MaterialScience AG is one of the mainstays of the Bayer Group. Since the beginning of 2004, the company has been operating as an independent, globally operating company within the Bayer Group. Bayer MaterialScience AG's activities are focussed on sustained, profitable growth. The company is therefore committed to improving efficiency and, in particular, to innovation and creative system solutions.

The international production network of Bayer MaterialScience, comprising 40 sites worldwide, produces more than 4 million tons of raw materials annually. Proximity to customers ensures short delivery times and flexible service. The main consumers of the company's products are the automotive and construction industries, the electrical/electronics sector and manufacturers of sports and leisure articles, packaging and medical equipment.

Among the best-sellers in the Bayer MaterialScience portfolio are the Makrolon®, Makrofol® and Apec® brands of high-quality polycarbonates. These products are indispensable for the manufacture of automotive components, optical storage media such as CDs and DVDs, medical equipment and many products integral to everyday life. For instance, polycarbonate sheeting is used to roof grandstands and train stations, and as transparent outer walls for gazebos and carports.

Polyurethanes have long been indispensable in many areas of everyday life. Polyurethane raw materials are used in applications ranging from mattresses, car seats and insulation for refrigerators to car bumpers and shoe soles. More than a quarter of the total amount of polyurethane raw materials produced globally comes from Bayer. Desmodur® and Desmophen® are important brands. Services provided to customers in this area include the development of customized formulations, technical support for processing technologies and an optimized sales organization operating via systems houses.

Coating systems based on polyurethane raw materials from Bayer MaterialScience have excelled in use on a variety of substrates. They reliably protect surfaces from weathering, they are resistant to chemicals and display first-class mechanical properties. Bayer has long been a pioneer in the development of environmentally compatible coating and adhesives systems, and is committed to extending its technological leadership. The Bayhydrol® and Bayhydur® brands of coating raw materials, for example, have a good track record in waterborne polyurethane coating systems.

Thermoplastic polyurethanes combine the high quality properties of polyurethane elastomers with the efficient processability of thermoplastics. Products from the

Desmopan® range are used for films, hoses, cable sheathing, ski boots, athletic shoes and automobile interiors.

The backbone of Bayer MaterialScience's production is the Inorganic Basic Chemicals Business Unit, which chiefly produces chlorine, but also caustic soda, hydrochloric acid and hydrogen.

In H.C. Starck, Wolff Walsrode, Bayer Sheet Europe and Hennecke, Bayer MaterialScience has four well-positioned specialist companies that are continually developing as independent companies and comprise a valuable adjunct to the portfolio. H. C. Starck can boast expertise in extracting and purifying refractory metals that is unique on the global market, and is also making an important contribution to the mobile energy production of the future in the field of ceramic fuel cells.

Wolff Walsrode is a leading specialist in cellulose chemistry. The company's products are used in foodstuffs, cosmetics, pharmaceuticals, coatings, printing inks and construction materials.

Hennecke GmbH, a manufacturer of polyurethane processing machinery, can draw on many years of experience and offers an extremely broad range of equipment for practically all areas of application.

Bayer Sheet Europe is a provider of high-quality plastic sheeting made, among other things, using Makrolon® polycarbonate from Bayer MaterialScience.

Continental

Rinspeed Senso fitted with ContiSportContact 2

The Rinspeed Senso is a concept car which adapts to its driver, thereby ensuring safety and a feeling of ease in traffic. Accordingly, the world's most sensuous car is fitted with ContiSportContact 2 high-tech tyres - after all, the driving performance should match the vehicle concept. The ContiSportContact 2 is extremely well-equipped for this role - considering it is a sports tyre, it nevertheless offers particularly balanced driving characteristics, ensuring high safety reserves and a comfortable ride.

The ContiSportContact 2 was specifically designed for fast performance cars and provides outstanding steering precision and high cornering stability, even when driving at the limit. Despite its sporty characteristics, this tyre offers a very comfortable ride, so driving long distances is not tiring. This makes it an exceptionally suitable tyre for the Rinspeed Senso. It also boasts best braking characteristics on both wet and dry roads. Thanks to its wide dispersion channels, aquaplaning protection on this tyre is very high.

This sports tyre from Continental is now available for virtually all sports cars and prestige saloons as Original Equipment and from car customizer's. The impressive size range includes over 100 variations and dimensions, making it one of the most extensive ranges of sports tyres of one brand on the market. The ContiSportContact 2 is also manufactured as a Continental SSR-version. These tyres with runflat capabilities are suitable mainly for Porsche's, Mercedes' and BMW's.

The Continental Group is a leading supplier of tyres, braking systems, suspension components, vehicle electronics and technical elastomers. In 2003 the company achieved a turnover of 11.5 billion euros and currently employs some 73,000 staff worldwide.

The tyre business unit is an Official Partner of the 2006 FIFA World Cup Germany.

in.pro. - alles was Autos Spass macht

Pure Emotions

in.pro. contributes to the »Rinspeed Senso« concept car, the most sensory car in the world.

Rinspeed, the renowned Swiss design and concept think tank and Bayer MaterialScience, one of the world's largest plastics manufacturer present their ideas and visions for the next car generation in the form of the new concept car »Senso«: a car which reacts to the driver and his emotional situation. in.pro., the globally operating car accessories specialist from North Germany participates in this extraordinary project as a partner and contributes both the lighting and the compact safety system in.pro.SAT.

»Senso«, the name of the Swiss concept car says it all. The vehicle »senses« the driver and adapts itself to him. After all, the accident risk is reduced considerably if the person behind the wheel is relaxed and wide awake. This is made possible by a sophisticated sensory idea which has been developed by the Universities of Zurich and Innsbruck. Smart Surface Technology, a new ductile 3D electro-luminescent foil from Bayer MaterialScience and the Swiss electronics specialist Lumitec, ensures a lighting in the driver's surroundings, among others which have a positive effect on him thanks to biometric read outs.

The »Rinspeed Senso«, which is fuelled with low-pollution and CO2-reducing natural gas places the human being in the focus of attention and addresses emotions with its unusual design. For example, it has a shell enamelling which breaks new ground. As far as the appearance is concerned, the specialists at in.pro. developed a complete lighting for the »Senso«. The development team at in.pro. head office in Henstedt-Ulzburg specially designed headlamps and indicators for this unique project. In addition to the technically demanding solution, the designers and engineers also proved that they had a large amount of sensitivity as far as the optical implementation was concerned. For example, the »Senso« has a distinctive and above all, attractive face which awakens emotions. A special feature of the innovative in.pro. lighting components is the extremely high quality of the series level.

In keeping with the security aspect of the project, the accessory specialists are also responsible for the compact security system in.pro.SAT. The satellite-supported system not only serves as an alarm and security system, it also has comprehensive functions which provide assistance in an emergency. The GPS satellite tracking system in in.pro.SAT enables the vehicle to be tracked around the globe. Although this feature mainly serves as a protection against theft, it is also used by in.pro for the provision of fast and uncomplicated assistance in an emergency. in.pro.SAT is able to receive and transmit messages in addition to it taking and making calls. If the system is manually activated by the driver or by automatic means, an alarm message is transmitted to the in.pro control room. This then institutes corresponding assistance measures.

The in.pro.SAT security management system is even activated if the driver is no longer in a position to make an emergency call to the in.pro. control room. In case of accident, a crash sensor is triggered and makes a call or sends a text message via a GSM module, this message containing the exact position data of the vehicle which has been involved in an accident to the in.pro. control room which then institutes all of the required assistance measures.

The emergency button which is integrated in the in.pro.SAT. system works using the same principle. The driver can push this button in case of an emergency, such as an acute illness or a hold-up. A connection is made to the in.pro. control room and assistance is provided.

Obviously, the telephone number of a person of trust can be stored as an alternative to the add-on to the in.pro. control room, whereby an emergency call can be transmitted to this number. The in.pro.SAT system has its own independent power supply, thereby ensuring a reliable and trouble-free function of the security system.

The commitment of in.pro. in the new »Rinspeed Senso« concept car is a consequent continuation of the long-term successful partnership entered into between the two companies. It is especially the case that the innovative in.pro.SAT system and the elegant in.pro. lighting are in every respect an excellent match for the emotional security concept of the »Senso«.

KW automotive

KW supplies coilover suspension for Rinspeed's Senso concept car

- Rinspeed Senso reacts to the mood of the driver
- Senso with KW coilover suspension Variant 3
- Variable setting options with KW coilover suspension

The Swiss company Rinspeed is well known for its spectacular concept cars, and is showing yet another highlight at the 2005 Geneva Motor Show – the Rinspeed Senso.

KW automotive GmbH, for years one of the world's leading providers of height-adjustable coilover suspensions, has equipped the Rinspeed Senso with a KW coilover suspension, Variant 3, in inox-line stainless steel.

The Variant 3 KW coilover suspensions allow various setting options, by means of which the handling characteristics can be precisely adjusted to the individual needs of the driver. Everything is possible, from extremely comfortable to extremely sporty. Variant 3 is infinitely height adjustable on the front and rear axles, and has a separately adjustable compression and rebound damping system. The variable ride height adjustment makes it possible to influence the vehicle's pitching and rolling behaviour and thus the handling and driving comfort. As a result, it is possible to tune the vehicle to the precise needs of the driver by changing the driving feel from comfortable to sporty. The rebound damping system of the Variant 3 influences the handling of the vehicle even more decisively. Increasing the damping force supports the vehicle even during the spring deflection stage and as such prevents any pitching and rolling, which noticeably improves cornering behaviour.

MP Design

Mr Kouros Mansory founded the company MP Design & Technik GmbH located in Munich in 1989. Production moved into the current plant in Brand in Oberpfalz in 1997. The relocation of all other departments to Brand took place in July 2000. Initially, the company's main line of business was exclusive interior fittings for high-quality automobiles. The increasing demand for specially coated parts led to the construction of the company's own production facilities. Leather workmanship was added in 1993 and wood processing and refining in 1995. This, in turn, made it possible to meet customer demand for high-quality polyester surfaces. Today our product range includes gear lever knobs made of wood or veneered synthetic material, veneered original pieces and steering wheels with wooden inlays or leather coating.

The fulfillment of our customer's demands and wishes is the first priority of our highly qualified flexible staff and specialists. We work solely with carefully selected suppliers guaranteeing the quality expected of us.

Our customers include reputable wholesalers, tuners and original equipment manufacturers at home and abroad, who require our products for refitting or for special editions with specific requirements. Our long standing, regular client base appreciates our reliability and quality, as well as the quick and flexible completion of orders, MP is working under the international automotive oversight ISO certification ISO/TS 16949:2002.

Sharp

„We do not seek merely to expand our business volume. Rather, we are dedicated to the use of our unique, innovative technology to contribute to the culture, benefits, and welfare of people throughout the world.

The entire history of almost one century has the character of visions and technical innovations. In 1916 the founder invented the mechanical pencil, named the “ever sharp pencil”. This first product marks the true genesis of name of the Sharp Corporation.

Today Sharp Corporation has over 55'000 employees and is engaged in various fields in the electronic industry. The worldwide leadership in LCT-TV and Photovoltaic attracts attention to the public.

Technical innovation, feeding the senses and the environmentally friendly concept correspond to the values of Sharp in a high degree. The multimedia-partnership Sharp and Rinspeed shows this to the public.

At events and exhibition Sharp Aquos LCD-TV will help the audience to understand and experience the Senso.

Recaro - from body shell builder to seat manufacturer

Recaro has made a name for itself as a manufacturer of sporting, ergonomic branded seats and seat units of premium quality. The name of Recaro stands for mature technical know-how resulting from almost 100 years of company history, and long-standing experience and competence in motor sport. Recaro seats reveal a clear lead in terms of ergonomics, comfort, safety and design. For vehicle manufacturers, Recaro has long advanced from a supplier of high quality seats to a first class partner of the automobile industry.

Recaro builds car seats that adapt optimally to driver's needs. The long-term experience gained in professional motor sport has benefited the development of sports seats for the road. Recaro has always been 'the trendsetter' satisfying customers' individual requirements, including design, firm contours, optimum streamlining, individual styling and exclusive looks: Get the Feeling - with a Recaro sports seat!

Yet, whether the desire is for sporting flair, freshness, dynamism, pure driving pleasure or prestige, luxury and safety, Recaro creates excellent solutions for convincing vehicle manufacturers and end consumers. Because: Winner sit in Recaro!

History: Master saddler Wilhelm Reutter established his car factory in Stuttgart in 1906. The company made a name for itself as a manufacturer of high-quality assemblies - for customers including Adler, Ansaldo, BMW, Bugatti, Maybach and others. From 1948 until

1963 the company produced the complete line of Porsche car bodies. In 1963 the production of car bodies was bought by Porsche, the resulting company known as Recaro (an acronym of REutter and CAROsserien – German for auto bodies) began producing the full line of Porsche seats. At the same time, the company introduced the after-market Recaro sport seats followed by the legendary Recaro "Ideal Seat". Today, the company still focuses on its combined objective of building series-production and after-market seats. In 1983 the 100 % take over by Keiper from Remscheid, Germany, took place. Today, Recaro is based in Kirchheim / Teck, where in 1990 the attractive Recaro Center was opened. A division of Keiper Recaro, Recaro seats have made an indelible mark in the automotive domain as one of the world's best-known and most successful brands in the after-market industry. Recaro is more than a seat, it's a philosophy.

Recaro forms part of the Keiper Recaro Group operating on 16 sites worldwide, with 6,000 employees and a sales of € 830 million in 2003.

University of Zurich

Rinspeed Senso / zenMotion – intelligent surfaces

Since its invention, the automobile has been improved mostly with respect to motor technology (horsepower, speed) and comfort/safety for the driver (mirrors, airbags). The "driver-car interface", however, has remained largely unchanged: Steering wheel, pedals, levers, and buttons are used to "interact" with the car. Only recently new concepts have been devised, such as navigation systems with speech synthesis. These developments path the way towards a safer driver-car interaction.

As both speed and number of cars increase steadily, mobility becomes its own pitfall: the more cars there are on the street, the more stress is induced in the drivers – which might even add to a potentially aggressive mood caused by private or work-related problems. Nowadays, cars are used primarily by individuals, so there is no-one there to soothe the drivers in case of aggression, or keep the drivers awake during a long, monotonous journey. This results in an increasing number of accidents caused by stress or drowsiness.

One solution to this predicament would be a car that reacts to the mood of its driver.

The Rinspeed Senso with zenMotion shows what the future in automotive man-machine interaction could look like: As soon as the driver approaches the car, the zenMotion displays wake up. Based on sensory data from the last trip (gasoline usage, speed, driving behavior etc.), a central computer generates animated patterns on the displays, which at this moment only serve as ornament. However, if certain parameters (such as oil level) are out of their normal range, the patterns change in order to give a visual hint of the anomaly.

During the trip, sensors constantly measure speed, accelerate-brake-frequency, the driver's pulse, and other aspects that are part of the "driving behavior". Depending on the situation, the patterns change to soothe the driver or keep him/her awake, the music volume is adjusted accordingly, and the cabin temperature rises or falls. Of course, this happens in very subtle and unobtrusive ways, so the driver will still fully concentrate on the traffic.

When the car is halted, the displays show some of the generated patterns for a while, then they switch to stand-by mode, ready to wake up for the next ride.

At the core of the Rinspeed Senso, a computer calculates the cognitively effective patterns based on data obtained by a wide range of sensors: Lane tracking, acceleration-brake cycles, temperature, eye-tracking, pulse, etc. all contribute to the "driving behavior", which

in turn is influenced by the displayed patterns.

Of course, the above scenario is still only a vision. The current incarnation does not yet feature all of the described sensors, but already gives a good idea of what the future will look like.

Conceived by Andreas Fischer, an industrial designer from the renowned Bauhaus university in Weimar, the zenMotion system is developed at the universities of Zurich and Innsbruck with designers, psychologists, mathematicians, computer scientists, and engineers. It is aimed at putting to use scientific findings from neurophysiology and psychology of perception by building intelligent surfaces which interact with the users, while at the same time increasing our understanding of how patterns influence on emotional and cognitive levels.

With a prototype of the zenMotion system, custom-tailored to fit the Rinspeed Senso's futuristic design, the project team hopes on the one hand to win further insight into the exciting field of cognitive and emotional effects of animated patterns used as an interface, and on the other hand to attract potential sponsors in order to realize its vision of intelligent surfaces.

Voitino CWS

More driving safety employing fine odors - Automobile Industry puts stakes into fine odors for car interior from Voitino CWS

Our nose is wonder of nature, which can differentiate between thousands of odors. Storeowners and coffee shop proprietors long know that fine odors can generate a sense of well being in customers. Automobile manufacturers now discover the possibility of massively improving driving safety employing fine odors. At the Automobile Show this year, the Swiss automobile pioneer Rinspeed will be on the spot with this theme, and present their new Concept Car to the public. CWS, a service company located at Glattbrugg - Switzerland (a Swiss market leader in the areas of wash room hygiene, foot mats, and pest.control), supports Rinspeed with its know how and the field-tested product Voitino CWS.

A Great Potential in the Future for the Automobile Industry

Numerous domestic and foreign universities have clearly assessed the impact of odors on humans in their research reports. If an odor flows through our nose, impulses directly impact an old part of the brain, which has an evolutionary history, the so-called limbic system (also designated as the reptile brain), and releases emotions from it. Automobile manufacturers now discover the issue, and exploit the benefits. The automobile pioneer Rinspeed, located in Zumikon - Switzerland -, presents how fine odors increase concentration capabilities, and how driving safety can be massively improved on their prototype vehicle "Rinspeed Senso" presented at their booth at the Automobile Show this year. The idea is still in the testing phase. Yet, automobile experts are convinced that this contains a great potential for the future.

Voitino CWS's Customers put Stakes into Fine Odors

What the automobile industry now discovers is long known by Voitino CWS customers: People like to stay at places that smell good. Good fine odors give us a sense of well being and impact us in a positive fashion, for example, a taste of Spring in Winter, ocean odors in a travel agency, or fresh aromas in a meeting room. Aromas, such as Air Fresh, Cool

Water, and Lime, cause increased concentration capabilities. If one wants to relax, he will choose Magic Odor, Green Tea, and Lavender. Fine odor offers are gigantic on the market. The Swiss market leader for fine room odoring, Voitino CWS, now offers a wide range of aromas. Sales personnel of Voitino CWS compose individual fine odor mixtures for their customers. Shop owners, hair studios, garagists, gastronomes, and hotel proprietors may thus decide which specific emotions they want to awake in their customers.

Gentle Warm Evaporation System

Different manufacturers now offer different fine odor systems. In conventional cold evaporation processes, odor molecules react with chemical or alcoholic odor agents, and rise up. Voitino CWS units employ a warm evaporation process. Pure natural oils are gently heated to 63° C in an odor tube, which allows for clean evaporation. CWS products are controlled in a stepless fashion, and may perform odoring onto 50-300 m² contingent to unit.

Xmobil Design+Marketing GmbH

As a long-term partner of Rinspeed, Xmobil Design + Marketing GmbH is meeting the challenge of contributing with highly innovative capability to the interior design of concept cars year by year. Besides technical material of neoprene-type or reflecting surfaces, also noble leather types (woven versions et al.) and innovative floor coverings were used, all of these are materials and material combinations, which had not been used in the automotive sector before.

For the Senso a special large-area, lattice-type construction of varnished artificial leather stripes was designed offering a view onto the below lying gleaming foil. The middle part of the Senso's seats is manufactured by a technical fabric, which is appealing optically and haptically due to its color composition and 3-D construction. The black, elastic bordering fabric is also constructed three-dimensionally being extremely abrasion-resistant (a derivative from the motorbike clothing industry).

An additional idea of Xmobil were the rubber floor mats of the Senso, there appliqués "transfer" the colors of the middle parts of the seats further down to the bottom. Finally, the Senso is covered by a perfectly tailored presentation cover made of a material especially designed for that purpose. This way the Senso is stimulating the senses long before its unveiling.

Xmobil Design + Marketing GmbH was founded in 1997 by Mr. Christian Grübl. Since then it has extended and supplemented its development program and product palette continuously.

In joint cooperation with flexible and highly effective suppliers new ideas specifically for the automotive sector are developed by Xmobil, then realized as parts of products and thus delivered into the industry. Xmobil is therefore cooperating with well-known, international manufacturers.

The following products provide the base for the development and sales activities of Xmobil: leather, leather fittings, artificial leather, technical and fashion fabrics, seat covers, seat systems (sport seats), floor mats (textile and/or rubber), floor coverings, car covers (indoor, outdoor, transport, products), accessories (bags, knapsacks et al.) and furniture.

Xmobil operates two offices equipped with showrooms in Germany. Its headquarter is located at the lake of Tegernsee south of Munich, another subsidiary can be found in Lorsch between Mannheim and Frankfurt.

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