

# 汽车电子新技术 自动驾驶新进展

## New Technology of Automotive Electronics: Automated Driving

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技术是当下全球汽车产业最关注的话题，而电子电器技术则占据着非常重要的地位，特别是自动驾驶技术颇受行业热议。在电子信息平台上，车道偏离警告、盲点检测、自动巡航等等，为汽车行驶提供安全服务；娱乐信息平台上，通用的Mylink、起亚的Uvo、本田的HondaLink等等，为司机驾驶提供娱乐休闲。下面，介绍最新电子电器技术，感知自动驾驶的脚步越来越近了。

Technology is now the most concerned topic in the global auto industry. At the same time, electronic technology occupies an important position, especially self-driving technology. In the electronic information platform, lane-off warning, blind spot detection, automatic cruise, and so forth provide security services for the car. In the entertainment information platform, GM Mylink, Kia Uvo, HondaLink and the like give the driver entertainment and leisure. Below is a brief about latest electronic technology including automatic perception driving getting closer.

### 福特 蒙迪欧多项智能化技术

新蒙迪欧采用了一系列同级领先的创新科技，为消费者带来卓越的驾乘体验。值得一提的是车载多媒体通讯娱乐互动系统（SYNC<sup>2</sup>和MyFordTouch<sup>TM</sup>）。新蒙迪欧配备的SYNC<sup>2</sup>是一款高度集成且具备语音识别的车载信息交互平台，为消费者提供了很多实用的语言指令，能够轻松实现语音命令拨打和接听电话、播放音乐、查阅电话簿、语音播出短信内容等指令，让消费者在驾车途中“双手不离方向盘，双眼不离前方路”，更加集中注意力开车。



### Ford Mondeo intelligent technology

Mondeo adopts a series of leading innovative technology giving consumers excellent driving experience. It is worth mentioning vehicle-mounted multimedia communication interactive entertainment system (SYNC and MyFordTouch<sup>TM</sup>). SYNC is a highly integrated vehicle-loaded information interaction platform with speech recognition, providing consumers with a lot of practical language instructions, including voice commands to make and receive calls, play music and view the phone book, and broadcast voice message. These let the driver pay more attention to drive.

### 丰田 “司机意识探索” 概念技术

丰田与微软研究院（Microsoft Research）共同开发的“司机意识探索”（Driver Awareness Research Vehicle, DAR-V）概念车。利用微软公司的Kinect体感技术，将车与人之间的交互设计充分融入到显示系统中。

将手势控制、语音控制、遥控钥匙相结合，司机能够

### Toyota - DAR-V

Toyota and Microsoft Research jointly develop a concept car (Driver Awareness Research Vehicle, DAR - V). With Microsoft's Kinect motion-sensing technology, the interactive design is fully integrated into the display system.



在驾车之前就获得交通、天气、预约等信息，甚至会将路段中经过的加油站位置标记出来。通过遥控器能够在车窗显示屏上对出行途中的多项计划任务进行规划。将这些“日常任务”在司机进入汽车之前就全部规划完毕，司机就能更专注于驾车的过程。



### 沃尔沃 自动驾驶技术投入实用

沃尔沃自动驾驶是在原有技术上进行升级，如行人检测系统以及防碰撞系统。体验沃尔沃自动驾驶的场景中，利用了一条光线昏暗的隧道以及一个人体模型。驾驶过程有点怪异或者不习惯，当车辆行进到离前方障碍物很近时，潜意识中想踩下刹车。其实车辆的安全系统完全保证司机的安全，会在紧急时刻进行制动。要完全信任智能汽车需要一个习惯的过程。新的配置中增加了夜间行人检测的能力，该技术目前在业界处于领先地位。

### 福特 无司机全自动泊车技术

福特正在测试一项全自动泊车技术，即便是狭窄的停车位，搭载该技术的车辆也能应对自如。最关键的是测试车中没有司机。

这项技术命名为“全自动泊车辅助”，目前正在比利时进行测试。虽然还没有正式在车上搭载，福特非常有兴趣将来把该技术投入实际运用。

### 斯巴鲁 发布新一代安全系统

新一代EyeSight系统新增了方向盘自动控制功能，就是在车道上保持辅助功能——将车辆保持在车道的中央及防止车辆偏离车道的功能。

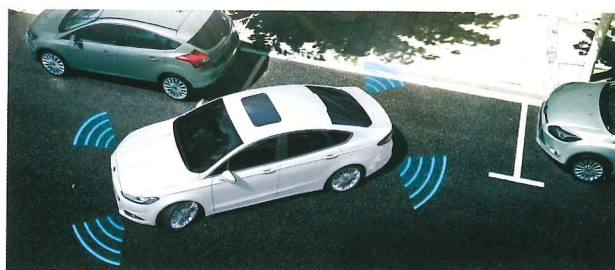
前者是在启动跟踪前方车辆的功能后，当车速超过65千米/时就自动控制方向盘，使车辆行驶于车道中央附近



Gesture, voice control, remote control key are combined. This lets the driver get pre-driving information such as traffic, weather, reservation, position of the gas station. Through the remote controller, the task schedule can be displayed. These daily tasks can be planned before the driver comes into the cabin. As such, the driver can concentrate more on the process of driving.

### Volvo self-driving technology put into use

Volvo autopilot is upgraded on the basis of original technology, such as pedestrian detection system as well as the collision system. In experiencing Volvo autopilot scenario, the light-poor tunnel and the human body model are used. During a driving, there is a little weird feeling or strangeness. When the vehicle to is quite close to the obstacles ahead, we subconsciously want to hit the brakes. Actually, the safety system of the car can fully guarantee the safety of the driver where an emergency brake is made. To fully trust smart cars needs a process of adaptation. The new configuration is the ability of pedestrian detection nighttime. This technology is in a leading position in the industry



### Ford – driver-free automatic parking technology

Ford is testing a full automatic parking technology. Even in the narrow parking space, the car using this technology can be easily deal with it. The key is to test without a driver in the car.

The technique named "automatic parking assistant" is now tested in Belgium. While not yet loaded in the car, Ford is very interested in putting it into practical use in the future.

### Subaru releases a new generation of security system

A new generation of EyeSight adds a function of steering system automatic control. That is, it has an assistant function in the lane to keep the car in the middle of the lane and prevent the car from deviating from the lane.

As to the former one, after the function to track the car ahead is started, when the car speed is above 65 km/h, then it can automatically control the steering wheel to enable the car in the middle of the driveway. However, if it is not expected for the driver to operate the steering wheel, this function will not be started. As to the latter one, when the car speed is over 65 km/h in the special road, if the car is going to ran out of the driveway, in addition to graphic and sound used to alert the driver, the torque will be added to the steering wheel so that the car is kept in the driveway. At this, no tracking function is needed.

### VW: 2014 CC will be first to use the Car – Net system

VW will take the lead to let the 2014 Volkswagen CC model equipped with new Car –.net entertainment information system. VW modular platform has penetrated into its multiple models, therefore,

的功能。不过，当推断驾驶员未操作方向盘时则不启动该功能。后者的功能是，当车辆以超过65千米/时的速度行驶在汽车专用道路时，如果出现跑出车道的苗头，除了通过原来就有的图示及声音来提醒驾驶员注意之外，还会向方向盘施加扭矩，使车辆返回车道内。这时无需启动跟踪功能。

### 大众 2014款CC将率先搭载Car-Net系统

大众将率先在2014款大众CC车型上配备全新的Car-net娱乐信息系统。大众的模块化平台已经渗透至旗下多个车型，因此，在2014款CC中看到同样应用于其他车型的RNS510模块化车舱科技也不足为奇。RNS510导航系统的图形模块并不花哨，它走的是实用路线。系统功能包括：CD播放、MP3、iPod连接、一个3.5毫米诊断插口、卫星广播等。

### 特斯拉 ModelS的超大触控屏功能

特斯拉ModelS车型对车载影音系统的追求近乎疯狂，配备了一个17英寸电容触摸屏。

特斯拉ModelS在探索周围技术方面表现十分突出。将其物理按键和触屏操控各自的优点进行了整合开发。巨大的液晶屏取代了以前的调节按键来进行交互式导航。同时，车载影音系统屏幕可以显示非常详细的Google地图。与智能手机上的操作一样，其支持多点触控、滑动地图、放大以及缩小等功能。驾驶特斯拉ModelS会有一种飞机仪表飞行的感觉。

### 本田 2014款思域将配新一代HondaLink

本田推出新一代HondaDisplayAudio和HondaLink系统，代表着本田目前为止最先进的车内连接技术。新系统将率先搭载于本田2014款思域车型中。

DisplayAudio和HondaLink技术能够将用户的手机功能在车内系统中无缝直观地显现出来。让车内人员能够实时获取最新的资讯、音乐、交通信息并与朋友、家人保持联系。

### 德尔福 MyFi车内连接新概念

德尔福的MyFi系统将重要的车辆信息显示在驾驶者视线前方。MyFi利用语音识别、超大屏幕、可重构显示技术和工作负载管理技术将信息传递给驾驶者。当系统与各个



it is not surprising that the 2014 CC has RNS510 module which is a navigation system going a practical course. System functions include: CD, MP3 player, iPod connection, 3.5 mm diagnostic socket, satellite radio, etc.



### Tesla ModelS: large touch screen control function

Tesla ModelS is crazily pursuing the car audio system. It is equipped with a 17 inch capacitor type touch screen.

Tesla ModelS is outstanding in exploration of peripheral technology. The advantages in physical buttons and touch screen control are combined. The large LCD screen replaces the old adjustment buttons for interactive navigation. At the same time, car audio system screen can display the very detailed Google map. As with the operation of the smart phone, it supports multi-touch, sliding map, amplification and narrowing and so forth. Tesla ModelS will give a feeling of aircraft instrument in a plane.



### Honda: a new generation of HondaLink

Honda introduces a new generation of HondaDisplayAudio and HondaLink. It represents Honda's most advanced in-car connection technology. The new system will take the lead to be equipped in Honda Civic Model of 2014.

DisplayAudio and HondaLink technology is similar to the user's mobile phone function that is showed seamlessly intuitively, letting the personnel in the car get the latest information, music, real-time traffic information and keep in touch with friends and family.

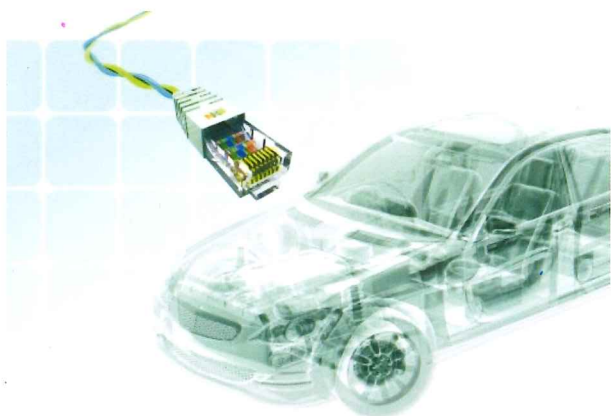
### Delphi MyFi connection new concept

Delphi MyFi system will display the important vehicle information in the front side of the driver. MyFi uses voice recognition, large

安全传感器连接时, MyFi能够在检测到各类情况时向司机发出警告, 例如前方拥堵警告、恶劣天气警告等。研究显示, 即使警告仅让司机提前半秒意识到危险发生, 也能够降低60%的碰撞事故。

## 奥迪 将为A3系列车型采用4G网络技术

奥迪将向旗下A3系列紧凑车全系引入4G/LTE (LongTermevolution, 长期演进) 网络技术。第四代网络技术将率先用于奥迪S3Sportback, 之后将普及到其他A3家族车型, 包括三门版A3和A3轿车。新款奥迪S3Sportback的4G网络系统由MMI导航系统应用, 能够快速连接谷歌地球、谷歌街景、音乐流媒体、网络电台和在线交通信息网站。



## 宝马 车载以太网实现1G/s传输速率

宝马将积极采用车载以太网。X5在连接周边监控用摄像头模块和ECU的传输影像的路径采用了可实现100Mbps传输速度的“BroadR-Reach”注1)。预定2015年应用以太网。宝马还在进行提高车载以太网的最大数据传输速度的研究, 计划2018年将现行的100Mbps的速度提高至1Gbps。

## 富士通 无变形显示的3D图像技术

富士通基于老的全景监控技术, 新的全景技术在车辆周围建立虚拟的三维场景, 再利用激光雷达搜集到的距离信息, 将摄像头搜集到的图像投射到三维场景中的相应表面上。该系统需要准确地布置每台摄像头和雷达的位置和角度, 目的在于, 当仅靠一个摄像头时, 物体背面和侧面位于盲区, 但是该盲区可以通过其他摄像头拍到, 通过整合, 消除盲区。最后合成的图像效果自然, 好于仅使用一个摄像头和雷达的效果。

screen, reconfigurable display technology and workload management technology to pass information to the driver. When the system is connected to the various security sensors, MyFi is able to detect all kinds of situations and issue a warning to the driver, such as congestion warning ahead and severe weather warning, etc. Research shows that even if only the driver is alerted half a second in advance, then 60% of the collision can be reduced.



## Audi will equip A3 with 4G network technology

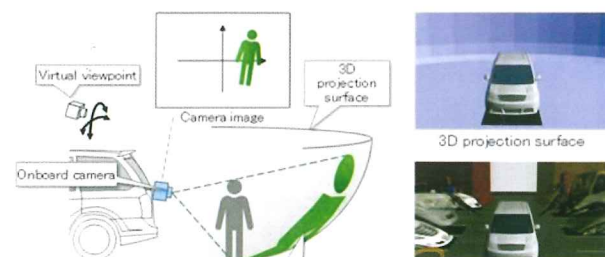
Audi will let its A3 series compact car equipped with 4 G/LTE network technology (LongTermevolution). The fourth generation network technology is first used in Audi S3Sportback, then used in other A3 family models, including three-door version of A3 and A3 sedan. S3Sportback 4G network system using the MMI navigation is able to quickly connect Google earth, Google street view, music streaming media, Internet radio and online traffic information website.

## BMW: car-loaded Ethernet has 1 gb/s

BMW will actively adopts the Ethernet in the car. X5 in surveillance camera modules and ECU image transmission paths adopts "BroadR - Reach" that can achieve 100 MBPS transmission speed - note 1). Ethernet is expected to be used in 2015. BMW is still going on in the research on improving the Ethernet maximum data transfer speed. It plans to improve from existing 100 MBPS to 1 GBPS.

## Fujitsu: deformation-free 3D picture display technology

Based on Fujitsu old-style panoramic monitoring technology, the new technology builds the virtual 3-D scene around the vehicle, and with the use of the distance information collected by the laser radar, project the images collected by the camera to the corresponding surface of the 3D scene. This system needs to accurately position each camera and arrange it at an angle. Its purpose is that, when only one camera is used (at this time the back and the side of the object are in the blind area, this blind area can be eliminated through the combined use of the other camera. The finally synthesized images are natural in effect, which is better than that in the situation where one camera and radar is used.



# 万向收购菲斯科打造

## Wanxiang Group Acquired Fisker



### 打造电动汽车产业链

万向集团一直是以汽车零部件为主营业务。万向深化“引进来”、“走出去”的战略，1984年产品走出去，1992年人员走出去，到1994年企业走出去，从国际营销向国际生产、国际资源配置不断发展。现在，万向已在美国、英国、德国、加拿大、澳大利亚等8个国家拥有27家公司，其中独资或控股20家。

2001年，收购纳斯达克上市的美商UAI公司，不仅扩大

### Electric car industry chain

Wanxiang Group is specialized in auto parts. Its strategy is to introduce new technology and go global. In 1984, it exported products; in 1992, its staff went global; in 1994, it developed overseas, including production, sale and allocation of resources. Now, this group has 27 companies, including wholly owned ones in the United States, Britain, Germany, Canada, Australia and so forth. In 2001, it acquired UAI a Nasdaq company in the United States, not only expanding the international market share, but also introducing

# 中国“特斯拉”（下）

## Automotive to Build China's Tesla (2)

文 / 千家骏 Text / Qian Jiajun

the UBP brand into China.

In 2002, it invested 5 high-tech projects including DET in the United States. August 12, 2002 was named Wangxiang Day by Illinois Government in the United States for recognition of its contribution to the state's economic development.

In 2003, it invested in an insurance group company in the United States. In October 2003, it had the successful acquisition of Lockford and became the first big shareholder of the latter.

In 2012, it acquired A123 a lithium battery company in the United States, which was a key step for it to enter the field of the electric car.

In 2014, it acquired Fisker. It is a very important step for it to build the electric car chain, though this was questioned in the public.

Wanxiang Group has successfully integrated the battery, motor, electric control, electric cars into its industrial chain. It spends the effort in the research and development and production of electric cars. Resolution in April 2010 is to invest and develop two key parts: motor and control system. In this, it has made progress step by step and the motor has enters a small batch trial test.

This group has developed relevant car models, including the electric cars, electric buses, dual-energy electric vehicles, and electric power service cars and so forth. Its pure electric bus has been operated in Bus Line Y9 in Hangzhou for three years.

Fisker is an asset acquired by Wanxiang Group, and is specialized in the development of range-extended electric cars. Wanxiang EV Limited is specialized in the pure electric cars. In the short term, Wanxiang EV Limited produces special cars, and Fisker passenger cars, so both of them do not compete with each other. Then, there is a premise that Wanxiang EV Limited will never produce the passenger cars. But in 2002, Wanxiang successfully developed the electric sedans, which means that Wanxiang EV Limited may enter the field of

了国际市场份额，还将UBP品牌引进中国。

2002年，在美国投资并实施了DET等5个高科技项目。2002年8月，美国伊利诺伊政府命名8月12日为“万向日”，以表彰万向对该州经济发展的贡献。

2003年，参股并控股美国霍顿保险集团公司。2003年10月，又成功收购美国一家“百年老店”、翼形万向节传动轴的发明者及全球最大的一级供应商——洛克福特(Rockford)公司，成为洛克福特公司第一大股东。



萬向集團  
WANXIANGGROUP



2012年，身手不凡收购美国锂电池巨头A123，万向的电动汽车迈出关键的一步。

2014年，以浓墨重彩的大手笔拿下菲斯科，虽然引得外界如潮的质疑声，但是万向打造全行业产业链圆电动汽车梦，这是至关重要的一笔。

这样，万向集团就成功集成了由电池、电机、电控、电动汽车组成的一个完整产业链，轻而易举进入整车制造领域，研发和生产电动汽车。2010年4月决议投资开发的电机和电控这两个关键零部件，已经逐步取得了进展，电机已经小批量试销试装。

万向电动汽车公司已经成功开发出电动轿车、电动公交车、双能源电车、电动电力服务车等车型。装备自主开发的聚合物锂离子动力电池和动力系统的纯电动公交车在杭州西湖Y9公交线路已经运行了三年。

菲斯克是万向集团收购的资产，并非在万向电动车体内，简单看与万向电动车无关，但是集团内的业务与上市公司不能同业竞争，菲斯克开发的是增程式电动汽车，万

the passenger cars. In the short term, Fisker does not promise to join. In the future, it remains unclear. At present, only Wanxiang Group in China is able to produce deluxe electric cars.

Wanxiang Group is very successful in the strategy of "going out". At the same time, this group actively invests nationwide, including cooperation in setting up of factories in Heilongjiang, Jiangsu, Hubei, Anhui, Jiangxi, Henan, Hainan and so forth. It is a provider for large customers from the foreign countries, carries out the negotiation, cooperation, and anti-dumping lawsuit.

Earlier, Mr. Lu reported to Mr Xi and was praised by the latter. Mr. Xi said that



向电动车是纯电动汽车。短期看万向电动车是专用车生产资质，菲斯克生产的是乘用车，这两种车不存在同业竞争，那么就有一个前提：万向电动车永远不造乘用车整车，但是2002年万向就研发成功了电动轿车，很难说万向电动车不会做乘用车。菲斯克短期不在承诺注入之列，未来不可知。即便菲斯克不注入，也不会改变万向钱潮的电动汽车产业链属万向电动汽车产业链的属性，目前中国只有万向集团具有豪华电动车业务。

万向集团实施“走出去”战略非常成功，卓有成效。万向在大胆走出去的同时，又积极引进来。充分利用三十多年形成的产业优势，积极与黑龙江、江苏、湖北、安徽、江西、河南、海南等地的主机厂合作建厂。国外，与铁姆肯等大公司边供产品，边打反倾销官司，边洽谈合作。

早前，鲁冠球向习近平汇报时，就受到习近平的称赞：走向国际化是条好路子，希望你们取得更好的成绩。

## 菲斯科能造品牌电动汽车吗

经过19轮竞价和三天缠斗，拍得美国插电式混合动力跑车制造商菲斯科汽车(Fisker Automotive)。目前，万向能否重振菲斯科，把菲斯科的品牌和产品带到中国呢？

菲斯科2007年成立，从公共及私募基金筹资共14亿美元。由于开支铺张、产品质量及工程失误等问题，导致公司逐渐走向倒闭，申请破产。内人士透露，菲斯科与特斯拉最大的不同是其并不掌握核心技术，菲斯科的核心技术都在供应商手里。

菲斯科由两个公司合资成立，车身制造公司和量子技术公司，双方占比分别为38%和62%。其核心技术底盘、混合动力控制系统、控制系统等属于量子技术公司，生产是由芬兰Valmet代工。也就是说，真正的混合动力驱动技术，并非菲斯科所有。

而被寄予厚望的量子技术混合动力驱动系统达不到菲



internationalization is a good way and hoped they could get better grades.

## Can Fisker produce electric cars?

After 19 rounds of bidding, Fisker Automotive specialized in the plug-in hybrid sports cars was successfully acquired. At present, can Wanxiang revive fisker and take its brand and products to China? Fisker was founded in 2007. It raised \$1.4 billion, including public and private equities. As a result of spending lavishly and failures in product quality, and engineering so forth, it went poorly and finally filed for bankruptcy. Insiders revealed that the core technology of Fisker is grasped by its provider.

Fisker is a joint venture by two companies accounting for 38% and 62% respectively. Its core technologies are the chassis, mixed power control system, and so forth possessed by its shareholder. Its production is in Valmet. That is to say, the hybrid drive technology is not possessed by Fisker.

The hybrid drive system can not meet the requirements of Fisker, and it has to be improved. How to develop the new drive and control tech still remains to be tested.

Moreover, Carma Model production has discontinued for more than a year. The grinding equipment from the supplier may restart after some time. A123 (now known as B456) now is shifted from the large-scale lithium-ion battery production to the small hybrid power car battery development.

It is important to note that the owner of Fisker brand and trademark is Fisker Coachbuild which declared that, if the trademark is used without written authorization, they will surely come to stop this.

Fisker brand, power battery, internal hybrid power control and management system, power transformation and integration system are not under the control of Fisker. The mass production of electric vehicles is still far out of reach. To restart the production plan, Wanxiang Group must make a great change to Fisker, which may be difficult.

Fisker will be a subsidiary of Wanxiang Group. The latter one also manages Wanxiang Qianchao. As long as the parts of Qianchao are up to standard, Fisker has no reason not to use them. As such, Qian Chao enters the new energy industry chain and is a more reliable suppliers.

## Wanxiang to build China's GM

Mr. Lu's car dream. As early as 10 years ago, he began to concern about the new energy and electric cars and determined to do







斯科的性能要求，只得硬着头皮进行大幅改进。今后，如何为菲斯科未来车型开发新型驱动和控制技术尽快赢得市场都有待考验。

再者，卡玛车型停产一年有余，主要供应商的磨具再次重启尚需时日。万向2012年收购的A123（现名“B456”）已从专注大型锂离子电池生产，转向开发小型弱混合动力汽车电池。

值得注意的是，“菲斯科”这一品牌和商标的实际拥有者，是另一家Fisker Coachbuild有限责任公司。该公司曾声明，如果未经书面授权就使用菲斯科商标，他们肯定会出面阻止。

万向虽然拿到了菲斯科，但菲斯科品牌、动力电池、内部混合动力的控制和管理系统、动力转换和整合系统，都不在菲斯科的控制之下，量产化电动汽车的目标，更是遥不可及。要重启生产计划，万向集团就必须对菲斯科进行彻头彻尾的改造。改造谈何容易！

菲斯克将会是万向集团的子公司，万向钱潮与菲斯克同为万向集团控制，只要万向钱潮的零配件达到标准，菲斯克没有理由不使用。只要使用万向钱潮的零部件，那么万向钱潮就是新能源产业链，比其他意图给特斯拉供货的零部件公司更加可靠。

## 万向能否打造成“中国版”通用

鲁冠球心中的汽车梦，早在10多年前，就将眼光投向新能源和电动汽车，下定决心自主研发整车。打造汽车产业链的终结目的，就是要造整车。他能打造成功中国版通用吗？

万向自主品牌汽车，用的是新型锂电作为动力，瞄准的是绿色、环保、低碳的方向。目前，用万向“动力总成”的首批纯电动汽车，正在运行中。万向集团锂电池生产基地奠基，上海世博会2000辆大型载客纯电动电动汽车的动力总成就是由万向提供的。

independent research and development for the cars. He is aimed at building the industry chain. Can he build successfully Chinese version of GM? The cars from Wanxiang take the new li-ion battery as a power, and goes along the direction of being green, environmentally friendly, and low in carbon. At present, the first pure electric cars using the powertrains from Wanxiang are running. The lithium battery production base has been made by this Group. The powertrains were provided by this Group for 2000 large-size pure electric passenger buses in Shanghai World Expo 2000.

In 1994, Wanxiang America Company was registered. This is a key step to integrate the overseas resources.

Three years later, Wanxiang Group formally knocked on the door of world auto giant GM and became its OEM. August 28, 2001, this group NASDAQ listed company UAL, followed by a series of mergers and acquisitions including 27 overseas companies.

In 2008, Forbes (Chinese version) says, "Wanxiang Group has successful acquisitions and development in the field of auto parts in the United States, and its chief Mr. Lu becomes a global leader in the field." Today, former U.S. President George W. Bush's uncle is the adviser of Wanxiang Group.

He has worked in the field of electric cars for more than a decade, and has never made a dime. But Mr Lu, as always, firmly goes forwards, "I will continue to input, in all my life".

So far, the national development and reform commission has received the application from more than 40 private enterprises. The application hopes an entry into the catalog of vehicles produced. Among these applicants, this Group is the most dazzling.

Mr. Lu looks back his past, "Everything is from hard working." This is the answer.

## Great support from the government

Today's Wanxiang has developed into a large enterprise with an annual turnover of tens of billions of dollars with diverse businesses, including auto parts, finance, insurance, agriculture and so forth.

This Group has adhered to the development of electric vehicle technology for 15 years. At present, better chances occur: It gains great support from the country and has a variety of resources.

It is found that this Group often is mentioned by national leaders during their visits to the United States.

In 2002, President Jiang Zemin visited Wanxiang America Corporation in Chicago and said that the fortune is from diligence.

1994年，万向美国公司在美国注册成立，这是鲁冠球为整合海外资源而投下的一枚重要棋子。

3年后，万向集团正式敲开世界汽车业巨头美国通用的大门，成为美国通用汽车公司的OEM；2001年8月28日，万向收购NASDAQ上市公司UAL，并在此后展开一系列并购，将27家海外公司揽入自己的企业帝国版图。

2008年，《福布斯》（中文版）评价鲁冠球说：“万向集团在美国汽车零部件领域的成功并购和发展，使其掌舵人鲁冠球成为该领域的全球领袖。”如今，美国前总统小布什的叔叔是万向集团的顾问。

他搞了10多年电动汽车，从来没有赚过一分钱，但鲁冠球一如既往地坚定，“我一定会继续投入，一辈子投入”。

到目前为止，国家发改委已经接到了40余家民营企业的申请，要求取得汽车整车生产目录，而万向是其中最为耀眼的申请者之一。

鲁冠球回首自己的创业往事，用一句话概括：“一切都是干出来的。”这就是答案！

## 国家部委重点培育万向

如今的万向已经发展为一家年营业额数百亿元的大象级企业，业务开始日趋多元化，从最初的汽车零部件供应，到现在涉足金融、保险、农业，控股多家上市公司。

万向坚持发展电动汽车技术路线已经15年，如今遇到了好时机；万向虽是民企，但是国家部委重点培育的对象，拥有多方面的资源。

大智慧通讯社发现，历届国家领导人访美时，万向受到国家高层领导人的特别青睐。

2002年，国家主席的江泽民曾参观在芝加哥的万向美国公司，并对万向的美国总裁倪频说过一句话：“闷声不响发大财。”让业界至今记忆犹新。

2011年，国家主席的胡锦涛，曾邀请万向集团主席鲁冠球、联想集团[微博]总裁柳传志、中国投资公司董事长楼继伟及海尔集团的总裁张瑞敏等四名企业家访美，与美总



统奥巴马面对面对话，也参观了万向的美国公司。

2013年，习近平主席访美时，新浪财经等媒体曾报道称，万向董事长鲁冠球获邀请访美。但万向钱潮在投资者平台上却予以否认。

其实，习近平在任浙江省委书记时，就高度评价说：“作为一个乡镇企业家，这些年来鲁冠球随着我国改革开放一路走来，很有风采，代表了中国企业家与时俱进的形象和中国企业改革的正确方向。”这是对鲁冠球的评价 / 鼓励和期待。

2013年五一节劳模座谈会上，习近平总书记会见鲁冠球说的第一句话，“老朋友，你现在怎么样，都好吧？”鲁冠球回忆道，“那一刻，我十分感动。总书记曾经在浙江工作过，对万向集团非常关心。现在离开浙江几年了，但总书记的心依然与我们贴得这么近。在座谈会上，总书记讲到全国各族人民都要向劳模学习时，还提到了我。说我是第一批乡镇企业改革家，还肯定我谦虚谨慎，一直保持务实低调，再有就是与时俱进，始终琢磨鼓捣万向节，始终处于一个领导潮流的地位。总书记鼓励我，我感到有压力，不过有压力才有动力。”

上世纪60年代，3年的打铁学徒生涯，在十几岁的鲁冠球心中，埋下了对机械制造的情感。对机械制造的痴迷，让鲁冠球把当时一个生产农业机械的小作坊，发展成国内最大的民营企业之一——浙江万向集团。当万向的汽配件行销日本、意大利、法国、澳大利亚等市场后，鲁冠球又开始为自己圆起了自主品牌的电动汽车梦，如今美梦的序幕已经成真——接下来建成“万向电动汽车王国”，必将指日可待。

This impressed the industry.

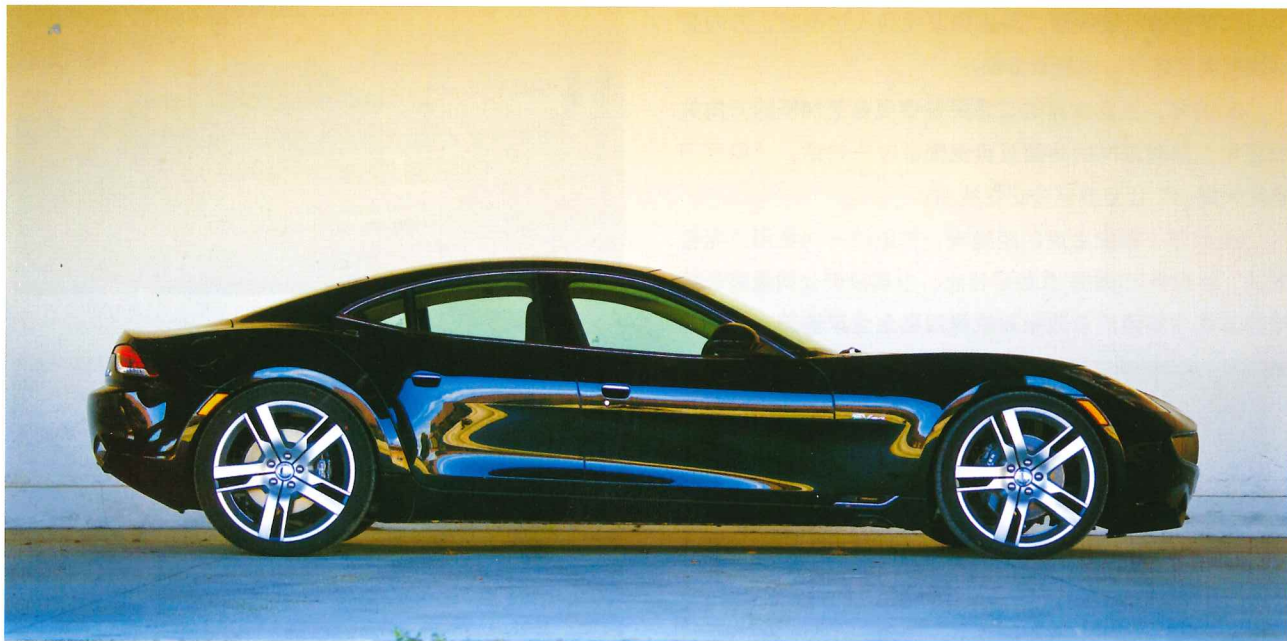
In 2011, President Hu Jintao invited Wanxiang Group chairman Mr. Lu, Lenovo Group president Liu Chuanzhi, China Investment Corporation chairman Lou Jiwei and Haier Group CEO Zhang Ruimin to make a trip to the United States and converse with the US President Obama who also visited Wanxiang Company in the United States.

In 2013, Chairman Xi Jinping visited the United States. It was reported that Mr. Lu was invited in this visit, but the Group denied it in its investors platform.

Actually, Xi Jinping as Zhejiang provincial party committee secretary spoke highly of it, "As a township entrepreneur, Mr. Lu in these years steps forward bravely along with our country's reform and opening up. He is the representative in China and represents the the right direction of China's enterprise reform." This is a kind of support and expectation.

May Day 2013, Xi Jinping general secretary met with Mr. Lu and said, "Old friend, how are you now?" Mr. Lu recalled, "At that moment, I was very touched. General secretary has been working in Zhejiang and was very concerned about our Group. Now, after some years, he is still with us so close. Secretary general advocated that the Chinese people and all ethnic groups should learn from the models. He thinks highly of my modest and prudent, and pragmatic style, low-key, and advancement with the times. General secretary encourages me. I feel the pressure, but the pressure can convert to the driving force."

Mr. Lu was an apprenticeship in the 1960s during which he was still a young man. He had the deep affection on the machinery manufacturing. The obsession with machinery manufacturing enabled Mr. Lu to develop a small workshop into one of the biggest private enterprises – Zhejiang Wanxiang Group in China. After his parts were sold in Japan, Italy, France, Australia and so forth, Mr. Lu began to enter the electric car chain. We believe that his dream of Wanxiang EV Kingdom will come true in the near future.



# 生物燃料电池零碳节能

Microbial Fuel Cell Features Zero Carbon and Energy Saving

文 / 阿尹 Text / A Yi

弗吉尼亚理工学院的研究人员Percival Zhang和Zhiguang Zhu设计出了这种新型生物电池，它能够直接将糖转换成能量，这就意味着它的输出远超之前的生物电池，甚至也超过普通的锂离子电池。新生物燃料电池原型，能够通过酶蛋白从糖中获取能量，未来或将取代传统锂电池为手机、电脑等设备供电。

人体通过新陈代谢过程将糖转变成成为能量，在将糖分解成为二氧化碳和水。这种生物电池也能通过捕获糖分解过程中产生的电子来产生能量。由于生物电池使用的是生物材料，它们可再生而且无毒性，这就使它们有希望成为传统电池的替代品。

## 研究人员正试图使用糖为电子设备提供能源

这种新生物电池依靠酶蛋白获得如此高的效率，它能近乎百分之百提取出糖分子所蕴含的能量，并且产生二氧化碳和水。而之前的生物电池提取的能量只有六分之一。

虽然这种循环能够完全将糖转化成为能量，但是与人体相比，它使用了较少的酶。犹他州大学的一位生物电池专家Shelley Minteer说：“使用最少的酶蛋白提取出所有的电子是非常重要的。我认为这是一种伟大的代谢路径。”

虽然新的生物电池系统意味着该领域的重大突破，但是它仍然需要克服诸多障碍。Zhiguang Zhu解释说：“目前，这种电池目前寿命仍然太短，而且它无法再充电。我们还将面临着一些挑战。”

Researchers Percival Zhang and Zhiguang Zhu designed a new biological cell which can convert sugar directly into energy, meaning that its output far exceeds that from the previous biological cells and even ordinary lithium ion batteries. New microbial fuel cell prototype can harvest energy from sugar by enzyme protein and in the future it may replace the traditional lithium battery to provide power for mobile phones, computers and other equipment.

The human body through the metabolism process converts sugar into energy, in which sugar is decomposed into carbon dioxide and water. The biological cell can also capture electrons from the sugar decomposition process to produce energy. Due to biological cells using biological materials, they are renewable and non-toxic, which makes them a promising alternative to conventional batteries.

## The researchers are trying to use sugar to provide power for electronic devices

This kind of new biological cell relies on enzyme protein to obtain such a high efficiency. It can extract energy from sugar molecules nearly one hundred percent and produce carbon dioxide and water. For the previous biological cells, their extraction efficiency is only one sixth.

Although this cycle can totally put sugar into energy, but compared with the human body, it uses a smaller amount of enzyme. Minteer Shelley biological cell expert at the University of Utah said, "Using the least amount of enzyme protein to extract all the electrons is very important. I think this is a great metabolism path."

Although the new biological cell system means an important breakthrough in the field, but it still needs to overcome many obstacles. Zhiguang Zhu explained, "At present, the battery is still too short in the life, and it can't charge. We will still face some challenges."

