



KUMARAGURU  
college of technology  
character is life

Department of Automobile Engineering, Kumaraguru College of Technology, Coimbatore

For Internal circulation only

01.03.2017 to 01.03.2018

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### HoD's Desk

*I wish all success to the final year students of batch 2014 - 2018, who is going to encounter fresh challenges in their life.*

*The department always concentrated on providing quality education and also stand by the motto of the institution "Character is Life", we feel that learning does not end here in college. For a student to succeed in life he needs to have this in mind "What you learn. how you learn and where your learn" is base to any level of education to instil creativity we guarantee all three. The Department of Automobile engineering has excellent and quality faculty members who give importance to skill enhancement and infrastructure development, to provide student with knowledge and also train students to face real life challenges by providing valuable courses and suggestions towards a successful career.*

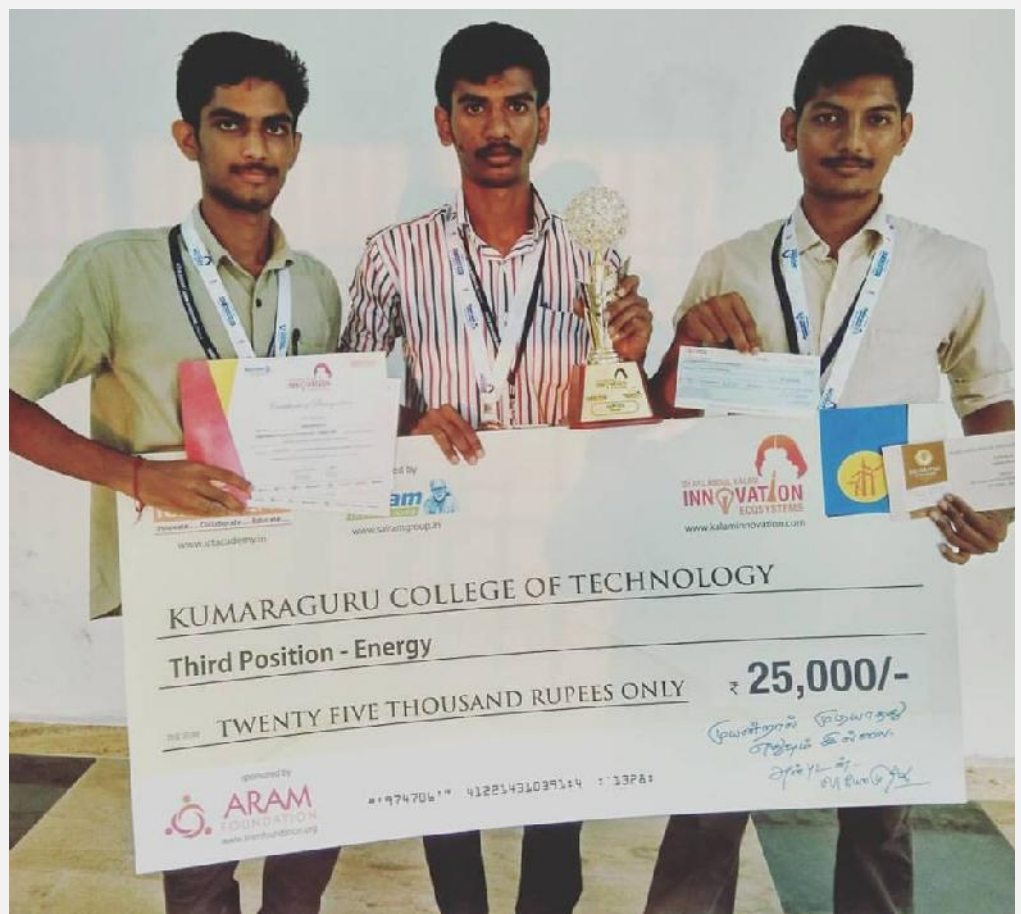
*The Academic year is coming to an end soon I take this opportunity to thank all the faculty members and students who is the backbone of all the success of our department*

*Cannot forget the racing teams who continuously put their time, sleep and effort for their dream.*

*Congratulations to Mr. Kowsigan, Mr. Jagdish and Mr. Kasi Aravinth final year Automobile Engineering students for winning the third place in the Dr. APJ Abdul Kalam Innovation Eco-System event held at Sri Sairam Engineering College, Chennai.*

### Highlights

- Industry connect
- International Collaboration
- Societal outreach
- Awareness programs for students
- Faculty Development
- Research
- Facilities Upgradation
- Tech news



Guest Lectures from various industries has been organized in the fiscal year,

*Guest Lecture on Guest Lecture on Scope of Automotive and Motorsports Sector*

*Guest Lecture on Effective Communication*

*Guest Lecture on Passenger vehicle Service*

*Guest Lecture on Career Awareness and opportunities in off Road Vehicle sectors*

*Guest Lecture on Current trends in Manufacturing Technology*

*Guest Lecture on Lean Manufacturing*

*Guest Lecture on Brake Design*

### INDUSTRY CONSULTANCY

Department of Automobile Engineering, KCT is doing consultancy work using "**Two wheeler Chassis dynamometer**" at Vehicle Maintenance Lab for vehicles from **L.G. Balakrishnan Bros Limited**. The consultancy was given on the following projects for the vehicles

- Chain Slag Measurement
- Vehicle Performance Testing

International Faculty Exchange

Mr. Graeme Harris

Kiwi racer at Automobile Dept, KCT

Ara Institute of Canterbury, New Zealand

# International Collaborations



Mr. Graeme Harris, Department of Mechanical Engineering, Ara Institute of Canterbury, New Zealand visited KCT as a part of a Faculty Exchange Program from October 03<sup>rd</sup> to 13<sup>th</sup>, 2017. Department of Automobile conducted several interactive sessions, workshop, seminars and hands on training in KCT Garage kindled the keen interest of the KCTians interested in Automotive Engineering.

**INTERNATIONAL SEMINAR on**

**ADVANCED FLUID RESEARCH AND TESTING**



Aeronautical and Automobile Engineering departments of KCT conducted **"International Seminar on Advanced Fluid Research & Testing"** on 05<sup>th</sup> October 2017.

Mr. Graeme Harris explained about the innovative Fluid Mechanics Teaching in New Zealand demonstrated the practical teaching methods Mr. Jaikumar highlighted how CFD applications are used in AEW&C aircraft design and simulation of Air to Air Refuelling. 41 faculty from 8 colleges participated in the event.

## GRAND MOTORSPORTS ENGINEERING EVENT IN KCT COIMBATORE INTERNATIONAL WORKSHOP on MOTORSPORTS ENGINEERING



Department of Automobile Engineering conducted "ONE DAY INTERNATIONAL WORKSHOP ON MOTORSPORTS ENGINEERING" in Kumaraguru College of Technology, Coimbatore, on **Saturday, 07<sup>th</sup> Oct 2017** in association with **ARA Institute of Canterbury, New Zealand** and **The Federation of Motor Sports Clubs of India (FMSCI)**.

**Mr. Akbar Ebrahim, President of FMSCI & CEO of Meco Motorsports Pvt Ltd** inaugurated the workshop and delivered lecture on Technical & Safety aspects of Motorsports. **Mr. Graeme Harris, a F1 Driver himself and Senior Lecturer in Mechanical Engineering at ARA Institute of Canterbury, Christchurch, New Zealand** has shared his experience how the KIWI's give their heart and soul to build a race vehicle and see it succeed.

He delivered lectures on **Interesting Engines** which were used in Motorsport racing and the second session handled by him was on **Motorsport New Zealand Style**, he gave insights on the different types of racing competitions happening in New Zealand like off road racing, on road racing, side car racing, saloon cars etc and also the technologies used in collecting the required data from the vehicle in olden days till today and importance of analyzing these data's for better performance tuning and to achieve better results in the future races.

**Mr. Sanjay Balu, Managing Director, Sri Balasubramania Mills & MVS Coimbatore Criterium and a Formula Car & Touring Car racing Champion** spoke about Career opportunities in Motorsports like non conventional career opportunities such as performance tuning and development of cars for street applications, starting a high performance and safety driving institutes, and also careers in various automotive companies.

**Mr. Arjun Balu, enthusiastic racer** gave some inputs on how to become a successful F1 race driver.

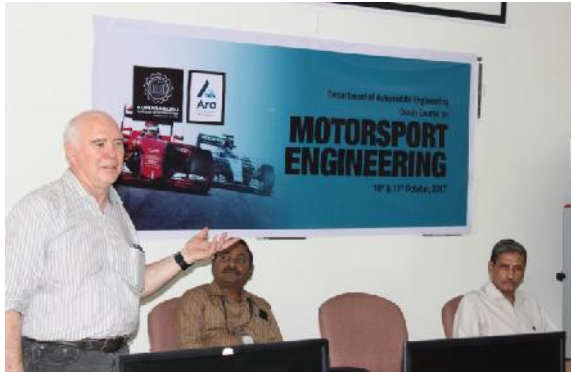
The leading racers in Motorsports circuit **Mr. Arjun Narendran, Best Saloon Car Champion 2017 & Mr. Gaurav Gill, Best Rally Driver 2017** were felicitated during the workshop for their achievements.

**Mr. B. Vijayakumar, Chairman & Managing Director, LGB** was honoured for his Outstanding Contribution to Motorsports in Coimbatore. **Mr. D. Vidya Prakash, Veteran Racer** was recognized for his Life Time Achievement in Motorsports by KCT. Leading FMSCI office bearers were present on the occasion.

## CRASH COURSE on

### MOTORSPORTS ENGINEERING

Department of Automobile Engineering, Kumaraguru College of Technology in association with ARA Institute of Canterbury, Christchurch, New Zealand organized a **Crash Course on Motorsports Engineering** on 10<sup>th</sup> & 11<sup>th</sup> October 2017. The objective of these programs are to give an exposure on advanced engineering concepts to students, young faculty, research scholars and engineers from Aeronautical, Automobile and Mechanical background. There were around 20 participants including students and faculty members from various engineering colleges in India.



The course covered the following topics Introduction to MotorSports, Engine Simulation, Engine & Two Wheeler Dyna Testing, Roll Cage Design & Analysis, Race Car Performance Tuning, Race Car Testing, Race Car Aerodynamics, Wind Tunnel Testing.

## BAJA SAEINDIA 2018

### MEGA DESIGN WORKSHOP



BAJA SAEINDIA 2018-Mega Design Workshop was conducted on 23<sup>rd</sup> and 24<sup>th</sup> September 2017 by SAEINDIA in association with the department of Automobile Engineering, Kumaraguru College of Technology. **The enthusiastic 220 Baja team members from 56 engineering colleges from Tamil Nadu, Kerala, Andhra Pradesh, Karnataka and Maharashtra attended the workshop.**

The Workshop was Inaugurated by **Mr. K. Venkataraj, Deputy Director General, SAEINDIA** the chief guest of the workshop, and delivered the Inaugural Address. This ceremony was enlightened with the invocation and lighting lamp by the respected chief guest and honourable guests.

**Dr. R. S. Kumar, Principal of KCT and Shri. Shankar Vanavarayar, Joint Correspondent of KCT** addressed the gathering. The ceremony ended with the vote of thanks by **Dr. S. John Alexis, HOD, Department of Automobile Engineering.**

**Day 1** first session was about **"CHALLENGES OF BAJA"** by **Mr. Mukesh Tiwari, Deputy General Manager at Mahindra Two Wheelers Ltd** who is also the Convener of BAJA SAEINDIA 2018 Pithampur Event. The next session was on the topic **"Vehicle Dynamics & Overall Testing Plans"** presented by **Dr. P. Parth Chattaraj, Additional Director of NATRIP.** Following this session, **Mr. Akhand Pratap Singh, Project Manager, Cummins India Ltd, Pune** continued on the topic **"Endurance testing".** **Mr. Akhand Pratap.** The final session on the day one of the workshop was on **"Design of Brake System"** by **Mr. K. N. Balaji, Ex-Brakes India Ltd.,** who is an expert in the design of Brakes System.

**Day 2** of the Mega Design workshop started with a video session on **"Steering and Suspension Design"** by **Mr. Rajeev Mokashi, Consultant, Ex. Senior Director –R&D Gabriel India Ltd.** The session was followed by webinar on **"Robust Design Practices"** by **Dr. K.C. Vora, Senior. Dy. Director & Head, ARAI Academy, Pune.** **Mr. Vinay Mundada, Consultant, Ex. VP - R&D Force Motors, Pune** also joined the workshop through webinar and presented on the topic **"Vehicle Build Quality / Failure Analysis".**

The Final session of this Mega workshop was by **Mr. Sanjay Nibandhe, Deputy Director, from ARAI, Pune,** on the topic **"EFFECTIVENESS of Time & Quality Management".**

## NATIONAL EVENT

### KCT Mini Dirt Bike 2018

The Department of Automobile Engineering, KCT, conducted KCT MINI DIRT BIKE 2018 on Saturday, 17<sup>th</sup> March 2018. The KCT Mini Dirt BIKE event is a challenge of design engineering and manufacturing competition that requires technical performance demonstration of mini bikes designed and fabricated/remodeled 60 CC and 80 CC motorcycles. Around 20 teams from engineering colleges from all over Tami Nadu participated in this full day event from consisting of technical inspection for evaluating the design, fabrication, rigidity, innovation features, cost report & marketing presentation of the bikes and qualifying them for static and dynamic events.



The event was inaugurated by **Prof. C. Vasantharaj**, Director, KCT. IRI Kumaraguru College of Technology, Coimbatore followed by Technical Inspection, Acceleration tests, Brake tests and Endurance performance tests. A total prize money of Rs. 40000 was awarded to winners of the event in 60 cc and 80 cc category with special awards for Best Rider & Best Innovation. A demo dirt race was performed by the professional racers from Red Roosters Racing Club before the commencement of the final Grid-Start Race for the top 5 bikes in each category.

## 3 DAYS PROFICIENCY IMPROVEMENT PROGRAM on

### "FUTURISTIC AUTOMOTIVE TECHNOLOGIES"

in association with Automotive Research Association of India (ARAI), Pune



*The Automotive Research Association of India (ARAI), Pune in association with Department of Automobile Engineering, Kumaraguru College of Technology (KCT), Coimbatore conducting Three Day Proficiency Improvement Program (PIP) on "Futuristic Automotive Technologies" at KCT from 17<sup>th</sup> to 19<sup>th</sup> August 2017*

*Dr. R. S. Kumar, Principal, welcomed the gathering, Shri. Shankar Vanavarayar, Joint Correspondent, KCT delivered the presidential address and emphasized on the need for the modern technology in automobile, Mr. T. V. Sriram, Vice President & Centre Head - Coimbatore, Robert Bosch inaugurated the program and delivered the inaugural address and highlighted the futuristic automotive technologies in India by 2040, Dr. K. C. Vora, Senior Dy. Director & Head, ARAI, Pune delivered the keynote address, Dr. S. John Alexis, Prof & HOD/Auto, KCT proposed the vote of thanks.*

*About 109 participants from industries like Roots industries, Jayem automotives, TVS motors, ILENSYS. John Deere and Volvo trucks and students from KCT and other engineering colleges attended the program.*

## STUDENT CONVENTION 2018 SAEINDIA SOUTHERN SECTION

Department of Automobile Engineering in association with SAE KCT Collegiate club of Kumaraguru College of Technology (KCT) conducted Tier I level competition for students. Competitions such as **Modelling And Animation Competition, Analysis Competition, Business Plan Competition, Technical Paper Competition, Auto Quiz Competition, Prototype Modelling – Challenge, Welding, Mechatronics, Manufacturing Tech Challenge, Mechanical Engg Design Cad, Electronics, Internet Of Things** is conducted and the winners of this Tier I level will participate in the Tier II level of the competitions.



## OPEN DAY

### DEPARTMENT OF AUTOMOBILE ENGINEERING

Department of Automobile Engineering of Kumaraguru College of Technology (KCT) has organized an Open Day to Automobile Engineering for school students on 18<sup>th</sup> November 2017. In total 150 students participated from the following schools Ksir's School, Vivekam Matriculation school, SNS Academy, Amirta Vidyalayam School, T.K.S Matriculation School, Maharishi vidya mandhir, N.G.R.A School and Government School (Kolathupalayam).



Various Competitions like Poster presentation on future car, Reuse of Automobile parts, Go karting, Mr. Mechanic & Driving simulator were organized for the participants. Participants were taken to different Automobile Laboratories as well.

### CAREER GUIDANCE WORKSHOP ON AUTOMOTIVE ENGINEERING in association with MOTOR VIKATAN

Dept of Automobile Engineering, KCT in association with Motor Vikatan has organized "Career Guidance Workshop on Automotive Engineering" for higher secondary students and their parents at Kumaraguru College of Technology, Coimbatore, on Saturday, 22<sup>nd</sup> April 2017.



## FREE SERVICE CAMP

Department of Automobile Engineering in Association with AutoZone has organized four wheeler free service camp at KCT for staff & students on 26<sup>th</sup> & 27<sup>th</sup> October 2017. Technical Team from AutoZone had conducted Free check up, Tire maintenance, Tire Balancing & AC gas recycling for the vehicles of KCT staff & students.

Total of about 40 vehicles had been reviewed in the service camp and benefitted out of it. Students from 2<sup>nd</sup> year Automobile Engineering had volunteered & took part in the vehicle Maintenance Activity.



## CONDUCTED ANNA UNIVERSITY APPROVED Seven Days Faculty Development and Training Program on "Finite Element Analysis"



Department of Automobile Engineering conducted an **Anna University approved** Seven Days Faculty Development and Training Program on "ME6603 - Finite Element Analysis" from 22<sup>nd</sup> to 28<sup>th</sup> May 2017. The objective of this program is to train and teach young faculty members and research scholars in the area of Finite Element Analysis. Experts from reputed institutes and industries will be handling the topics.

27 faculty members from various colleges in Tamil Nadu such as Bannari Amman Institute of Technology, Sri Sai College of Engineering & Technology, Hindusthan Institute of Technology, Sri Ramakrishna Engineering College, Excel college of engineering, M. Kumarasamy College of Engineering, Sri Krishna College of Engineering, Velammal Engineering college, Chennai, KLN College of Engineering, Madurai, SNS College of Technology, SSM Institute of Engineering & Technology, Dindigul, Velalar College of Engineering & Technology, Erode, Tamilnadu College of Engineering, PPG Institute of Technology has attended the program

## WORKSHOPS AND CONFERENCES

### ATTENDED

- ) **National Symposium on "Processing, Testing and Characterization of Materials (PTCM) at PSG College of Technology, Coimbatore.**  
Mr. S. Sivakumar, Mr. C. Naveen Kumar, Mr. G. Rajkumar
- ) **7 days FDP on Design of Machine Elements at Karpagam College of Engineering, Coimbatore**  
Mr. T. Karthik
- ) **9 days FDTP on Design of Machine Elements at Panimalar Engineering College, Coimbatore**  
Mr. S. Sivakumar, Mr. G. Rajkumar
- ) **7 days FDTP on Engineering Thermodynamics**  
Mr. J. D. Andrew Pon Abraham
- ) **2 Days Hands on Training on Aurix Microcontroller at Infineon Technologies, Bangalore**  
Dr. G. Thenmozhi, Mr. C. Naveen Kumar, Mr. A. Prabhakaran
- ) **2 days Workshop in "Hands on Training in Composites Preform Formation Techniques and its Characterization"**  
Dr. S. John Alexis, Mr. C. Naveen Kumar
- ) **7 days Faculty Development Program on CFD**  
Mr. S. Satish
- ) **Faculty Internship at Ampere Vehicles Pvt Ltd, Coimbatore**  
Dr. G. Thenmozhi, Mr. T. Karthik
- ) **11 days GIAN Course on Electric Vehicles and System Design at BMS College of Engineering, Bangalore**  
Mr. J. Saiganesh, Mr. R. Kishore
- ) **SUPRA SAEINDIA 2017 at Buddh International Circuit, Greater Noida, UP**  
Mr. R. Kishore
- ) **National Level Symposium sponsored by CSIR and SAEINDIA Southern Section at IRTT, Erode**  
Mr. S. Sivakumar, Mr. T. Karthik, Mr. S. Satish, Mr. R. Kishore, Mr. C. Naveen Kumar
- ) **Proficiency Improvement Program (PIP) on "Futuristic Automotive Technologies" in association with The Automotive Research Association of India (ARAI), Pune at KCT.**  
Mr. S. Sivakumar, Dr. G. Thenmozhi, Mr. J. D. Andrew, Mr. T. Karthik, Mr. J. Saiganesh, Mr. G. Rajkumar, Mr. R. Kishore, Mr. C. Naveen Kumar, Mr. A. Prabhakaran, Mr. B. Arun, Mr. S. Santhosh Kumar.
- ) **Hands-on Training on Diesel Engine Management System at KCT**  
Mr. R. Kishore, Mr. C. Naveen Kumar, Mr. A. Prabhakaran, Mr. S. Santhosh Kumar, Mrs. J. Sreelatha.
- ) **8 days GIAN Course at IITM - Combustion in Engines**  
J. D. Andrew Pon Abraham
- ) **Two-day TEQIP- III Sponsored International Workshop on "An Innovation Pipeline for Alternative Fuels & Fuel Cells - Future of Mobility" in PSGCT Campus, Coimbatore.**  
Dr. G. Thenmozhi, Mr. T. Karthik

## WORKSHOPS AND CONFERENCES

### ATTENDED

- Hands on Training on Lauterbach debugger and Aurix Controller*  
*Mr. A. Prabhakaran*
- Faculty Development Program on "LEAN MANUFACTURING"*  
*Mr. J. Saiganesh, Mr. R. Kishore, Mr. C Naveen Kumar, Mr. T. Karthik, Mr. G. Rajkumar*
- 3 days FDP on "Pedagogy driven by the specified outcomes for any course" at Indian Institute of Technology Madras , Chennai.*  
*Mr. B. Arun*
- Seven days FDP on "Vehicle Dynamics" at Trichy.*  
*Mr. B. Arun*
- Main event of Enduro Students India (BSI), GEDEE off Track, Coimbatore*  
*Mr. T. Karthik, Mr. S. Santhosh Kumar*
- Industry Connect by ACMA, at Hotel Feathers, Chennai*  
*Mr. B. Arun, Mr. A. Prabhakaran*
- Two days conclave "Design Education for creating values and driving business growth" at ICSR Building, IIT Madras.*  
*Dr. S. John Alexis, Mr. J. Saiganesh*
- Formula Bharat 2018 - Networking with Motorsport Experts & Top Institutions and Learn vehicle developing concepts, global exposure*  
*Mr. R Kishore*
- International Conference on Innovative Design, Analysis & Development Practices in Aerospace and Automotive Engineering*  
*Mr. S. Satish*
- InnoWAH - The Innovation Challenge Competition of PALS*  
*Mr. A. Prabhakaran*

### RESEARCH

#### PAPER PUBLICATIONS

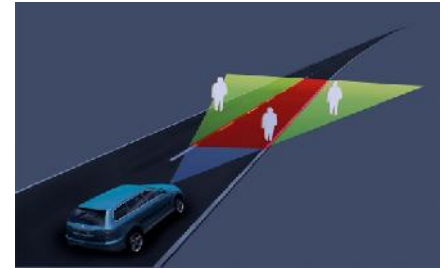
- MODAL ANALYSIS OF MWCNT REINFORCED AA5083 COMPOSITE MATERIAL*  
*Journal Name: International Journal of Civil Engineering and Technology (IJCET)*  
*Dr. S. John Alexis*
- Dynamic multi-keyword based search algorithm using modified based fully homomorphic encryption and Prim's algorithm*  
*Dr. S. John Alexis*
- To present a paper titled Design and Analysis of frame and steering system of campus utility vehicle in the "International Conference on Engineering and Advancement in Technology" at Sri Krishna College of Technology, Coimbatore.*  
*Dr. G. Thenmozhi*
- To present a paper titled Analysis of Double Chambered single and Cascaded Microbial Fuel cell (Characterization study based on the Enrichment of Fuel) in the International Conference on Science, Technology, Engineering and Management (ICSTEM'18) AT KIT, Coimbatore.*  
*Dr. G. Thenmozhi*

## CURRENT &amp; FUTURE

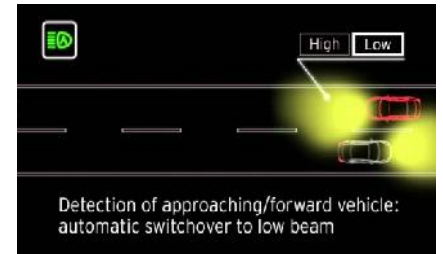
## AUTOMOTIVE TECHNOLOGIES

**Night vision with pedestrian detection**

Although night vision in vehicles isn't a new technology — Cadillac offered it in 2000 — the Mercedes-Benz updated version is called Night View Assist Plus. Unlike the Night View Assist, which has been available in the S-Class since 2005, the new system pinpoints pedestrians, highlighting them on a dashboard display. It's offered in the 2010 E-Class in showrooms late this spring. BMW has a similar system with a pedestrian identifier that also shows the direction the pedestrian is moving. As the distance closes between pedestrian and vehicle, a warning appears on the night vision monitor as well as the head-up display on the windshield if so equipped. BMW offers this system on the 2009 7 Series.

**Automatic high-beam control**

In the redesigned RX, Lexus offers a system that automatically illuminates and dims the high-beam headlights in relation to approaching traffic. A camera mounted on the rear view mirror detects when the vehicle is closing in on oncoming traffic, as well as vehicles ahead travelling in the same direction, and disengages the high beams. Mercedes-Benz takes the technology one step further with its Adaptive High beam Assist. Also found in the new E-Class, it doesn't merely switch between low and high beams, but reacts by gradually increasing or lowering the light distribution based on the distance of approaching traffic. It also dims the high beams for sharp turns and then re-engages the high beams if there is no approaching traffic once the turn is completed.

**Driver capability**

Although it might be beneficial to have a system that evaluates driver aptitude and shuts down the vehicle when incompetence is detected, we aren't there yet. But technology exists that measures a driver's fitness and issues warnings when a driver is judged overly tired or impaired. Attention Assist, found in the 2010 Mercedes-Benz E-Class, remembers a driver's normal behavior behind the wheel and establishes it as the driver's baseline profile. Continually measuring factors such as speed, lateral acceleration, steering wheel angle, pedal use and so forth, the system determines if there is any deviation from the baseline. If so, it alerts the driver visually and audibly that it's break time. Even external influences such as crosswind and road surface are factored in.

**In-car Internet**

Although pure Wi-Fi Internet access from a moving vehicle is still in the future — albeit the near future — there are systems that allow for surfing using cell phone technology. The first system to turn your vehicle into a Wi-Fi hotspot is Autonet Mobile. Using a portable router mounted in the trunk or other out-of-the-way location, this system uses a 3G network to supply an uninterrupted signal regardless of cell tower blind spots, tunnels and so forth. In addition to the \$399 router, there is a monthly subscription fee of either \$29 or \$59 based on estimated usage. Chrysler currently offers its UConnect Web system in several models while Ford offers a system called Ford Work Solutions on the current F-150 pickup truck that primarily targets contractors. It dovetails several technologies into an integrated system that can complete a variety of tasks from maintaining your tool inventory to sending out invoices, creating spreadsheets and surfing the Internet through the Sprint Mobile Broadband Network.

## CURRENT & FUTURE

### AUTOMOTIVE TECHNOLOGIES

#### **Parental control**

Parents who are afraid their teen driver might speed or be distracted by playing the vehicle's audio system at an excessive volume can use Ford's new MyKey system to limit speed and volume. When programmed, MyKey limits the speed to 80 miles per hour. It can also be programmed to limit the audio volume and to sound a continuous alarm if seat belts are left unfastened. Eventually available in all Fords, MyKey is offered in the recently released 2010 Escape Hybrid and Mercury Mariner Hybrid.

#### **Gesture Control**

Many vehicles today are outfitted so that we can yell "Go Home" or "Call Work, " and the fancy infotainment system will respond with the appropriate GPS directions or phone call. Now, you can simply wave your hand and have your vehicle respond with some simple tasks. For example, the BMW 7 Series allows you to "train" the gesture control system to wave your hand to activate the windshield wipers. While this probably isn't worth any extra cost, it's an interesting feature that you could see expanded in the next several years.

#### **Active Window Displays**

Head-Up Display (HUD) technology has come a long way from the dim, washed out green digits some cars projected on their windshields 20 years ago. But as good as HUD is in 2015, by 2020 we'll see active glass capable of displaying vibrant images. Imagine a navigation system that actually highlights the next turn (as seen from your perspective, through the windshield) as you approach it.

#### **Remote Vehicle Shutdown**

This technology already exists, with OnStar leveraging it regularly. In recent years the telematics company has shut down hundreds of stolen cars, ending police chases quickly and with little drama (though most drivers still don't know it can be done, even drivers with OnStar...). By 2020 remote vehicle shutdown will enter the social consciousness, negatively impacting nightly news ratings everywhere.

#### **Active Health Monitoring**

Ford Motor F +1.78% Company has previewed the idea of seatbelt or steering wheel sensors that track vital statistics, though the rapid development of wearable technology means most cars will just wirelessly pair with these devices (think cell phone for your body). Combine this with basic autonomous technology and you've got a car that can pull over and call paramedics when the driver has a heart attack.

#### **Reconfigurable Body Panels**

The small SUV category is seeing increased demand these days, while truck sales grow by leaps and bounds. What if you could have both vehicle types in one car? Imagine an SUV with lightweight body panels and advanced motors that retract the roof and side glass into the lower body panels. Now throw in Chrysler minivan stow-and-go seat design and BAM! A truck and SUV in one vehicle. It could happen.

by  
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