The Virginia Tech Smart Road at VTTI

EngE 1023: Introduction to Coofers

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Dear Reader,

Welcome to the April 2007 issue of the Engineer’s Forum. The one thing that I have learned while I have been here at Virginia Tech (VT) is that time flies. It seems as though it was just yesterday that I carried a handful of boxes into a small room in Ambler Johnston, as a freshman with my mind full of hopes and fears. It has been nearly four years since that day and in a few days I will be graduating and moving on to the next step. As I pass the title of Editor-in-Chief to another person in this organization, I have no doubt that the Engineer’s Forum will continue to improve as the team I leave behind is full of passionate young students determined to bring you the latest about technology and engineering from this little town nestled in the Appalachian mountains.

This issue contains some exciting articles about topics such as the Virginia Tech Transportation Institute (VTTI) and the research that they participate in. We have a very interesting article about the word Coofer and its history on the VT campus. Additionally, we dug up some random trivia about VT that you may want to add to your list. These, along with the other articles make this a very interesting issue to read, so be sure to read through all of them.

When I stepped into my role with this magazine, one of my goals as the Editor-in-Chief was to continually improve this magazine in a variety of ways and I certainly hope that I have achieved that. As usual, please feel free to voice your opinion by emailing or calling us. I wish you the best of luck with exams and with life in general. Have a wonderful summer break!

I will leave you with this wonderful quote by Mark Twain:

“Twenty years from now you will be more disappointed by the things you didn’t do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor. Catch the trade winds in your sails. Explore. Dream. Discover.”

Respectfully,

Divakar Mehta
Editor-in-Chief
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Top Virginian Officials to Speak at Dedication of Virginia Tech’s Nanotechnology Building

By Lynn A. Nystrom

Virginia Tech’s Institute for Critical Technology and Applied Science (ICTAS) will dedicate its first building that will house the Nanoscale Characterization and Fabrication Laboratory (NCFL) and related office space at the Corporate Research Center on Sept. 21, 2007. The NCFL will allow Virginia Tech to have capabilities on par with the best nanotechnology labs in the world.

The keynote speakers for the dedication will be: Aneesh Chopra, Virginia’s Secretary of Technology; The Honorable Joe May, the head of Virginia’s Joint Commission on Technology and Science (JCOTS); and Ray Martin, retired Chief Executive Officer of Schnabel Engineering, owner of Ray E. Martin, LLC., and former co-chair of Virginia Tech’s ICTAS Task Force.

The building will provide 16,000 square feet for the NCFL laboratory plus 16,000 square feet for related office space. It will provide a collaborative home to existing and new state-of-the-art tools for fabrication, characterization and testing materials at the macro, micro and nano scale as well as office space for faculty, staff and students involved in these efforts.

ICTAS was founded on the premise that Virginia Tech’s existing research strengths should be leveraged and promoted to position the university as a leader in research on the state, national and international level,” said Roop Mahajan, ICTAS director and the James Tucker Professor of Engineering.

“The institute will accomplish this through coordination of the university’s talented and creative faculty in the pursuit of interdisciplinary and multi-disciplinary research. Entrepreneurial and dynamic in nature, the institute will lead technology transformation by nurturing a proactive, responsive and nimble research culture, ultimately positioning the university as an agent of discovery and problem solving in the technological and scientific global environment,” Mahajan added.

In particular, ICTAS will foster the exploration of opportunities for societal enhancement and preservation for future generations. ICTAS is targeting four focus areas: nanoscale science and engineering; nano-bio interface; sustainable energy; and water, renewable materials and the environment.

The second ICTAS building, currently under construction, is expected to open during summer 2008, and will include an additional 100,000 square feet of engineering-led research labs, offices, and workspaces. ICTAS I will also serve as the research institute’s headquarters. A third building is in the design stages.
Have you ever been freaking out about a test you have the next day when one of your friends comes up to you and offers you their coofer from when they took the class the previous semester? If you are a new student at Virginia Tech (VT), you might be wondering what a coofer is. Well, as common knowledge goes today, a coofer is an old test from a class that is usually passed along to new students in that same class as the years go by. (You might see the word coofer spelled more commonly today as “koofer”, but to keep with the original article below from the 1944 Virginia Tech Engineer I am using the original spelling “coofer.”)

These old tests sometimes serve as a unique way to review and study. But do they violate the honor code? Well, that depends on the professor of the class. Some professors say that using a coofer is an honor code violation, so be sure to check with your professor before relying on a coofer to prepare for a test. It would be bad to get in trouble for something as small as using an old test to study for an exam. If your professor allows coofers, take advantage of the information that can be found in these tests. Some professors even post coofers on Blackboard for their students to use while studying for a test, so take advantage of the resources that are provided to you. Aside from learning the format that the professor uses on his or her exams, pay attention to the types of questions that are asked. The questions could be similar to the ones that you could have on your test. Just a word of caution for the wise: do not take the coofer as a gospel for how to ace a test in a class, because you can never tell if the professor has changed his or her teaching style from when the coofer was given, if the textbook and course material has changed, or if the professor has deliberately changed the test format because of the coofers that are floating around. Your best bet is just going to class, taking notes, and listening for hints from your professor on what to expect on the exam. Most professors are not out to hurt your GPA with their tests, and are not wanting to throw too many surprises at you in a testing situation.

Believe it or not, coofers have been around Tech for a long time, and in the 1944 issue of the Virginia Tech Engineer, the origins of the word coofer and its meaning is discussed. The Virginia Tech Engineer was the predecessor to today’s Engineers’ Forum. Below is a reprinting of the issue of the February 1944 Virginia Tech Engineer that will hopefully clear up any questions as to how the term “coofer” came into existence and how its meaning is interpreted on this campus today. The term coofer is pretty much unknown on other college campuses, and is strictly a Virginia Tech term. It is a really interesting read and it is cool to see how the term has morphed over the years. Special thanks to Tony Giunta of the 1996 Engineers’ Forum for his work on a similar article and William Smith of the 1944 Virginia Tech Engineer for the original article on the origin of the coofer.

“The Origin of the Coofer” by William Smith (1944 Virginia Tech Engineer)

Once upon a time there lived in Bluefield, West Virginia, or Virginia, as the case may be, a group of boys who attended Bluefield College- one of Tech’s extension schools. They were, as a group, exemplary embryo engineers whose faults are common to all of us, but whose imagination has served to enrich the vocabulary of this campus by one word, that euphonious and vitally important morsel of slang, “coofer,” and its various and multitudinous derivatives. Their sophomore mechanism problem, one afternoon, was a difficult one and one of uncertain answer, even to this group of near geniuses. Ah, me, they wondered, what could be the right answer?

At this juncture, one of the more consecutive thinkers in the crowd recalled that a junior down the hall had
completed the course. Could he help them? Down the hall they all streamed and into the junior’s room.

“Sure, help yourself. There’s a filer of all those old problems of mine over there in that old coffer,” and the junior indicated a trunk standing in the corner. The sophomores, after a reassuring glance at its concrete correctness, trudged back to their problem and a successful finishing of it.

As the days passed and the course became more difficult, frequent and still more frequent became these raids on the old coffer and its store of answers. Eventually, through constant reference to it, the coffer came to mean the problems referred to and not the old box they were kept in, and colloquialism changed the harsh sounding coffer to the more harmonious and beloved form, coofer.

The word was transferred to this campus along with several of the group of its originators, and it swept the campus like wildfire, for it exactly suited a long-felt need for a word of such definition. It soon began to appear in forms other than the noun, and is now used as a verb in such constructions as “to coofer a problem,” or in the abbreviated form, “to coof an answer,” and as a very descriptive adjective as in “the coofer king” or “the coofer kid.”

In spelling, we believe, should be standardized in the form used herein, as this construction indicates the etymological derivation of the word from its worthy and deserving origin, the old Bluefield College coffer. Such transitory spellings as keufer (from the slide rule of the same name) and koofer are frowned upon by modern reputable usage.

Today, cooferism is a popular aid to course passing, and the gathering of any and all old problems is held by some as a prerequisite for advancing in engineering work.

An eminent authority on campus has stated, “The answer to all of your problems is in the literature.” A number of people rank the coofer as reference literature in its most useful form. The coofer will never replace brains and the slide rule as the engineer’s greatest aids in gaining an education, but it will remain as the best shortcut now available for faking one.

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During the spring semester of last year, the Department of Mining and Minerals Engineering opened a new laboratory that is focused on teaching students about automation and controls processes in mining engineering. The lab is located in 111 Holden Hall, and was made possible by a donation from an anonymous alumnus, according to Mining Engineering staff member Robert Bratton. Robert Bratton is currently the Industrial Programs Manager for the department.

When the donor asked what they could donate to the department, the response from the department was to purchase 10 Allen-Bradley (A-B) training workstations, the same as those used in the mining industry to train engineers and technicians on the principles of automation and controls processes. The training workstations are almost identical to the workstations used in real situations, except for the fact that instead of having gages, dials, and monitors getting data from the mine itself, controls on the workstation are used to simulate these readings.

The Mining Engineering department then completed the renovation of the former student computer laboratory where the automation and controls laboratory currently resides by adding flat...
panel monitors, laptops (including the specialized software needed to work with the A-B workstations), and other equipment for the room, such as brand new tables and chairs, including new window blinds, a 60-inch freestanding white board, a 72-inch wide projection screen and a ceiling mounted projector, according to the Spring 2006 Mining and Minerals Engineering Department newsletter article about the new laboratory. A total of twenty students, in addition to the instructor, can work in the laboratory at once. “Initially, the software was going to be given to students and faculty to put onto their own computers, but the decision was made to purchase laptops for the laboratory and load the software on the machines there so that the laboratory would be self-contained,” said Bratton.

In addition to the opportunity to learn about automation and process control first-hand, the new facility also has the capability to give students a chance to learn about electrical control systems as well; there is an isolated wireless network in the laboratory. This allows one student’s work to appear on another student’s or the instructor’s workstation in order to transfer data or screen output. Even things like programming, instrumentation, or how to troubleshoot the workstations can be taught in the new laboratory, mentioned Bratton.

“The new laboratory was built in response to alumni working in industry who were telling us about the real need for this kind of training”, said Bratton. A graduate level class was held in the laboratory during the spring 2006 semester, Dr. Jerry Luttrell, Massey Professor, taught the course. It went well, according to Bratton, but there is still work to be done to improve the laboratory and the class.

The idea is not just to have university faculty and students, both graduate and undergraduate, use the laboratory, but to open the facility to those working in the mining industry as well. The laboratory plans to start offering specialized training sessions to the workforce in the near future, as well as additional MinE classes for graduate and undergraduate students enrolled at Virginia Tech. Eventually, there is hope that graduate and undergraduate research can be conducted using the equipment in the new automation and controls laboratory.
1) How many seats are in Lane Stadium?
Approximately 66,555 seats including the boxes and club seating that was recently finished in the West section of the stadium.

2) What is the oldest academic building on campus still in use today?
Lane Hall

3) How many colleges are there?
8

4) How many RAs are there on campus?
At least 250

5) How many acres are on the Drill Field?
22.5 acres

6) In what residence hall could you live for free when it was first built?
Slusher Tower

7) Where is the newest research on vehicles taking place?
At Virginia Tech Transportation Institute (VTTI) with the Smart Road program

8) How many bachelor’s degrees are offered?
60
8) How many different bachelor's degrees are offered at Tech?
60

1) In what building is the largest classroom on campus?
Squires (Colonial Hall seats over 650 people)

10) What does Ut Prosim mean?
That I May Serve

9) What is McBryde built in the shape of?
A compass

12) What is the largest research facility in Blacksburg?
VTTI

13) How many full time students are enrolled?
More than 25,000

14) How many buildings are on campus?
At least 100

15) How many acres does main campus contain?
2600 acres

16) When was Tech founded?
1872

11) In what building is the largest classroom on campus?
Squires (Colonial Hall seats over 650 people)
Virginia Tech engineering students have created an endowment for their peers and future generations of Hokie engineers. Virginia Tech’s Student Engineers’ Council (SEC) has created a permanent funding source for the dozens of engineering design teams in the college. With an initial gift of $105,000 to be formally presented at the SEC’s Leadership Awards Luncheon on April 30, the SEC is “using the revenue it generates from the Engineering Expo and creating a long lasting source of money that will benefit the College of Engineering for years to come,” said Jonathon Kegan, director of philanthropy for the SEC.

“Our goal is have this endowment reach $500,000, depending upon how well Expo is run throughout the next few years. However in the interim, the new endowment would be able to provide some assistance by using the interest generated off the principal amount,” Kegan, a junior in electrical and computer engineering, explained.

“Once the overall goal is reached, design teams would be eligible to apply for a set amount of money that will help fund their team in design, travel, or any other costs they might have. As these design teams succeed in competitions, they truly show how great the College of Engineering at Virginia Tech really is,” Kegan of Dryden, Va., added.

“This endowment is loaded with potential; as it begins to fructify, we will see it feed student involvement, innovation, and ownership in their education. The SEC is truly realizing its vision to serve the College of Engineering, engineering student societies, and engineering students by planting and nourishing this financial seed. The SEC is sincerely grateful for every single sponsor; without them, none of this would be possible,” added Michael Chappell, now an alumnus of the University who works as an analyst with Accenture.
Chappell, now of Alexandria, Va., was the 2005-06 SEC chair who originally conceived of the design team endowment. Prior to this most recent gift, the SEC had already twice earned the most philanthropic student organization in the country by the National Association of Engineering Student Councils. These recognitions were in 2003 and in 2006 for past gifts of cash to support programs in Virginia Tech’s College of Engineering.

“As we continue to think of new ideas to benefit the College of Engineering such as this endowment, one can only imagine this number will continue to climb,” Kegan said.

In addition to its grants, the SEC also confers three endowed scholarships annually, each having a principal value of $25,000. The SEC created its first scholarship in 1985 with the financial assistance of the members of the Committee of 100, a select group of Virginia Tech engineering alumni. The students announced this scholarship as a surprise to honor Paul E. Torgersen, who was Dean of the College of Engineering at the time. Since then, the endowment has grown substantially, and now allows for two Torgersen Leadership Scholarships to be awarded each year. They are awarded annually to two rising seniors who have shown outstanding leadership and academic achievements. Each scholarship is worth $1250.

In 1988, the SEC decided to endow a third scholarship from its own generated income. Called the Nathnael Gebreyes Service Scholarship, it is awarded annually to a rising junior or senior who has portrayed outstanding service principles to the university and the community. The scholarship is worth $1250. Gebreyes was a past chair of the SEC who was tragically killed in an automobile accident by a drunken driver. The SEC earns the revenue it donates to the college by hosting the Engineering Expo career fair each year. In 1980, approximately 40 companies attended the Career Fair; today, some 250 companies participate and due to a lack of space, another 50 have remained on the waiting list for the past two years.

“Virginia Tech’s Engineering Expo is one of the most successful career fairs in the country,” said Erik Anderson of Harrisonburg, Va., the 2006-07 chair of the SEC.
A group of engineers at Johnson Space Center’s laboratories are creating a new spacesuit that will perhaps replace the 275-pound white suits which are currently being used. Although the looks of the new suits have not yet been thought about, the agency is targeting to make them high-tech and low-maintenance.

A prime requirement of the new generation spacesuit is that it should be small and light. The engineers want to reduce the current weight of not just the spacesuit, but also of the life support backpacks. NASA wants to specialize this suit so it can be used at launch, at the International Space Station, on the moon, and the planet Mars. Some of the many features the spacesuit will have include temperature tolerance, ability to protect from radiation, and the capacity to work with minimal power. The organization intends to utilize newer, lightweight composite materials which will employ smaller electronic components in order to make the life support backpack little compared to its current size.

Terry Hill, the developer of the new spacesuit, feels that the top part of the suit should be designed as per the mission’s use. By doing so, costs and cargo weight can be constrained since astronauts won’t have to don multiple suits. There will be no need for separate white spacewalking suits and orange launch/re-entry suits. Jeff Williams, a veteran astronaut, who has used both the American and Russian spacesuits, feels that the challenge involved in the development of the suits is finding the “balance”. While the U.S suit can allow astronauts to work in them for a long duration of time, the composite of it makes maintenance difficult. On the other hand, the Russian suits are of a one-size-fits-all model and are used a couple of more times before they are thrown out. However, these don’t let astronauts work comfortably in them.

The engineers involved in this project expect to find developing the suits relatively easier than in the past. Before a physical model is prepared, the suits will be produced, tested, and re-designed, if necessary, on the computer. Because of the technology and valuable information available, the production of the suits should be relatively easy.

As far as cost is concerned, Hill has not mentioned a price for this new suit since a production contract has to be given. However, he does feel that it is likely for it to be expensive. NASA intends on granting a contract sometime within a year. And with that first step, it plans to prepare a first prototype by 2010 and certify it by 2012 when the new spaceship, Orion will be making its first trip in 2014.
Ethanol as an alternative source of fuel should not be news to most of America. As a nation, we have been beating around the bush with it since the 1970s when Brazil switched over to vehicles using sugar-derived ethanol, built by the same car manufacturers we have today. What is news, however, is that finally on March 24, the 2007 IndyCar Series, home of headliners Michael and Marco Andretti, and Danica Patrick, kicked off its season running 100 percent ethanol in Honda’s new 3.5 liter Indy V-8 engine on the Homestead-Miami Speedway in Florida.

The series’ exclusively features Honda engines that have been tested this past Fall during the Indy Racing League (IRL) road test of the Daytona International Speedway. Honda engineers as well as drivers were well-pleased with the change from methanol to ethanol fuel in the new engines. Additionally, they found their cars running without any serious problems. Driver Tony Kanaan speaking about Honda’s new ethanol-running V8 HI7R engines said “It ran perfect,” and driver Sam Hornish Jr. reported that “We’ve already reached speeds of 190 mph, and we’re not really pushing it.” After more successful tests, the IndyCar Series along with its partner, the Ethanol Promotion and Information Council (EPIC) were awarded the Akerman Senterfitt Ethanol Innovator in Sports Award for being the first series in professional motorsports to use the environmentally friendly, biodegradable, and renewable fuel source. Executive director of EPIC, Tom Slunecka, stated “The IndyCar Series’ choice of 100 percent fuel-grade ethanol... sends a message to consumers that performance and environmental responsibility go hand in hand when choosing ethanol-enriched fuel at the pump.”

**Consumers are getting the message**

With gas prices on the rise again, and fluctuating by 50 cents a gallon over the course of months, the more predictable supply of ethanol is increasing in its appeal to the general market. How do we know this? By the mighty stock market of course! Though ethanol production in the U.S. has had a shaky start in the early 1990s, and has remained shaky for 10 years, ethanol production has doubled in the past three years, and is being pushed to triple over the next three. Gas prices at the pump are high enough that U.S. ethanol producers can keep their prices high enough to fund 100 percent increase in size and quantity of ethanol plants nationwide. With even traditionally weak alternative fuel stocks being on a steady rise for the past year, and marketing influence from organizations like the Indy Racing League and companies like Honda, it looks like ethanol is here to stay.

**By Tim Jacobs**

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Did you know that the chance of a fatality while driving in a car is actually greater than the chance of an airplane crashing? Like most people, this fact came as a huge surprise to me. Safety on the road is a very serious business and it is something that governments all over the world take a lot of interest in. If you have recently bought a car or have been reading about some of the new features in vehicles, you have definitely come across a variety of unique features, which albeit annoying in some circumstances, save lives. For example, consider the Honda Accord that is very popular and a great seller in many countries. Did you know that the hood and front of the Accord is designed in such a way so that if the vehicle collides with a pedestrian, the hood and body will crumble in a way that will not hurt the pedestrian as badly as other vehicles would? This is a feature that is definitely not annoying. Also, compare the recent repetitious passenger seat belt warning system that is now popping up in almost all new cars. This can be a little annoying at times; however, it really serves as a great reminder for everybody in the car to buckle up.

If you are a member of the Virginia Tech (VT) community, then you should be very proud to learn that VT is actually at the forefront of transportation safety research. In 1996, the Virginia Tech Transportation Institute (VTTI) was designated as one of three Federal Highway Administration/Federal Transit Administration Intelligent Transportation Systems Research Centers of Excellence. Since then, the Institute has consistently grown and its research has directly led to many policy changes on both the state and national level. Furthermore, in 2005, because of the leadership shown by VTTI in transportation research, it was designated as the National Surface Transportation Safety Center for Excellence. You may be wondering what kind of research is carried out at the VTTI, so let us get into some more details.

**Lighting**

As a driver, you have probably already realized that the lighting conditions of the road can make a big difference in safety. Lighting is an important part of driving, whether you are driving on a scenic countryside road, a major interstate, or in the middle of New York City. There are other vehicles, pedestrians, and a variety of other objects that need to be considered while one is driving. One of the major projects researched at VTTI is the lighting of roads and the reaction of drivers to different lighting conditions. Ronald Gibbons, who is the Leader for the Lighting and Infrastructure Technology (LIT) Group at VTTI has done some remarkable research in the past. Consider, for example, the white or yellow pavement markers that are all over the roads around the world. Since these markers are reflective, when a vehicle’s headlights make contact with them, you probably already know that they are not simple stripes of white or yellow paint. There are a variety of ways in which the pavement markers can be made and each method has its pros and cons. This is particularly vital in wet conditions, if not designed and applied correctly, the marking will simply disappear. Additionally, researchers have to consider that an average-traveled road faces some of the most brutal conditions possible. It can be extremely hot in places like Arizona and freezing cold in places like Alaska. All of these conditions, as well as many others, affect the roads and those in

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**A look into how research improves safety on the road**

**By Divakar Mehta**
charge of road maintenance and upkeep have to keep all these factors in mind so that a county or city does not constantly keep spending large sums of money on repairs. Choosing the right marker for the right place is a very important factor and can make a major difference in safety.

Another project that the LIT Group at VTTI has worked on is the lighting conditions on the road itself. Many people fail to realize the amount of science and research that goes into putting up a light pole. Dr. Gibbons and his team researched a wide variety of factors during the course of this project. For example, did you know that the distance between light poles can make a very big difference in how the road appears to the driver? Also, these same poles can make a world of difference to pedestrians.

The type of lighting conditions greatly affects how visible a pedestrian is to a driver. This particular project focused on different types of lighting on the road and how it affected the visibility of the driver. This is where the Smart Road located at VTTI comes into the picture.

The Virginia Smart Road is a limited access road in Montgomery County that is currently 2.2 miles long and is a closed test bed research track with turnarounds at either end. The plan, however, is to eventually connect the road to Interstate 81 which would increase the length of the road to 5.7 miles. The Smart Road features some of the coolest technology to be found on any road in the world and is owned by the Virginia Department of Transportation (VDOT) and operated by VTTI. Researchers can create rain, fog or snow given the correct ambient conditions so that they can run tests in the most real world conditions possible. The lighting study at VTTI created road conditions using the all-weather testing towers, along with the lighting on the road, to increase visibility for drivers and for pedestrians as well. The results of the research conducted at VTTI are then used by the federal and state agencies as well as automobile manufacturers to make the roads safer for all of us.

Safe Driving Research
Another big research project at the VTNI recently, was regarding drivers and the activities they engage in while driving. This research project used a variety of devices to gather lots of data on drivers and then analyzed this information to come to conclusions regarding drivers and their behavior. Just last year, VTTI released the results of one of its major research projects which involved attaching devices such as cameras, GPS transmitters and other sensors on vehicles while they were driven by average citizens in the Northern Virginia/Metro DC area. The results from this study were alarming because of the variety of behaviors demonstrated by the participants. The devices were installed on a total of 100 vehicles for an entire year and the study logged over 2,000,000 miles of travel and resulted in 42,300 hours of data collected. All of the data collection led to the following synopsis: there were a total of 82 crashes, 761 near-crashes and 8,295 critical incidents such as swerving or braking. According to Andrew Alden, a Senior Research Associate at VTTI, some of the factors that commonly lead to crashes or near-crashes are: usage of cell phones or other electronic devices while behind the wheel, sleep deprived drivers, drivers who are otherwise multitasking (taking care of pets or children while driving), people fiddling with their radios, applying make-up or anything that takes the driver’s eyes off the forward roadway for more than a few seconds at a time. This research is crucial and is something that every driver should understand before getting behind the wheel. Driving a car seems harmless and easy, however, it has the potential to take many lives and lead to a lot of damage. Similar to the research project above, VTTI has recently started a newer project that is studying newly licensed teenage drivers simply be-
cause they are deemed riskier than an average driver. The project will collect data for a period of 18 months and all information collected is strictly confidential.

All of this may seem as though it is just common sense and is very easy and simple to implement, however, it is essential to realize that all of the data that VTTI needs has to be collected, analyzed, and stored properly. Such research projects very easily lead to terabytes of information being collected. Additionally, the researchers at VTTI need to make sure that there is no tampering of data or damage to equipment being used. An example that Mr. Alden presented was a car that was involved in a rear-end accident and even though everything was seemingly fine, the weather-stripping around the trunk had become ineffective, therefore leading to water damaging the equipment put in the trunk. All of the data that the car collects is actually recorded on the vehicle itself, given the enormous size of the information. VTTI tried using wireless networks, however, they quickly found that no current wireless network could support the amount of data being moved around which led researchers to use hard drives that are installed on an on-board computer that is installed inside the trunk of the vehicle. Periodically, the research participants have to come to VTTI garages for the download of all the collected data. Also, the Institute has to ensure that nothing obstructs normal usage because the participants are civilians and do not drive only in special conditions. The cars being used are cars that these participants use every day. All of this equates to a lot of research being conducted on reducing the size of the gadgets on board the vehicle and making data collection more efficient and easier so that such a study such as this could be implemented on a much larger scale.

VTTI is a dedicated Institute with research professionals determined to make the road a safer place for all of us. There are many more projects that take place at VTTI and interested readers should definitely pay a visit to VTTI’s website: www.vtti.vt.edu to learn more.
The biggest lesson to be learned by everybody is that driving is a very serious business. There are many lives at stake when you get behind the wheel. It is important, especially for students to not do silly things behind the wheel because they will most certainly lead to someone getting hurt. Also, most importantly, particularly in a college town such as Blacksburg, please do NOT drive drunk. Be safe and use a designated driver.

- The Engineers’ Forum would like to thank Dr. Ronald Gibbons, Andrew Alden and all the wonderful researchers and staff members at the Virginia Tech Transportation Institute for their time and effort!
I CALL HER
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