FES LLC
Latest News & Events

July 2008

FES LLC
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USA

Inside this issue:

TrackCoach™ ProShift Release

It's been a long time coming, but the Beta release of the TrackCoach™ ProShift is just around the corner. This is the first product of a line of driver improvement products (the TrackCoach line) and was chosen to be our first product for several reasons: First off, there would be no proprietary communications protocols that would require complex reverse engineering and second, FES would use this product to establish relationships with various vendors creating our supply chain.

We now have supply relationships with Inverse Solutions Inc., a CNC machine shop in Pleasanton CA, and Meritronics Inc., a contract manufacturer with a presence in both Sunnyvale, CA and China.

FES has also formed software and firmware development teams based in Romania.

We have also compiled a list of willing Beta testers who will receive early production versions of the ProShift in July. They will work with the product and provide feedback so that we can quickly address any issues in ease of use and the like.

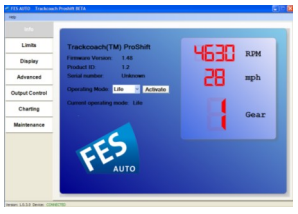
Here's the TrackCoach™ ProShift mounted on the Tachometer.

During one of the largest Mini events in the US (AMVIV, or A Mini Vacation In Vegas), we spoke with several retail channels, all of whom expressed an interest in carrying FES products. They too will receive Beta units for evaluation. Volume deliveries are scheduled to begin in August.

"The most advanced Shiftlight ever!"

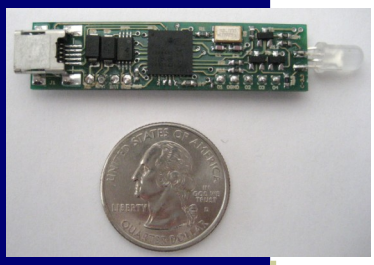
The ProShift is really a shift light on steroids. No other product comes close to offering as wide a set of standard features. Besides giving visual feedback to the driver about when to optimally change gears, the microcontroller upon which the product is based can do much, much more. We have designed 4 digital outputs into the unit so that external items can be controlled based on RPM, vehicle speed or both, depending on the drivers needs. Examples include intercooler sprayers (to help cool air intake temperatures on boosted cars), water injection systems or even multi-stage nitrous systems!

The use of highly integrated components enables us to add—on top of all the other features—a USB port. Configuration of the ProShift can be conveniently done via a Windows application.



Screenshot of the ProShift Application

Trademarks and Patents



The highly integrated ProShift module

"The TrackCoach(TM) ProShift is really a shift light on steroids. No other product comes close to offering as wide a set of standard features. "

Small companies like FES must pay particular attention to both intellectual property protection and the creation of defensible and identifiable brands. To this end, FES has registered two trademarks and has filed one patent with a second in the final stages of preparation. All of these efforts focus on the automotive aftermarket, the first market FES will approach.

Trademarks: ***TrackCoach™*** and ***Smooth is Quick™*** were both registered in February. The *TrackCoach™* label is for a product line of driver feedback devices, and *Smooth is Quick™* is a phrase that is specifically attached to our upcoming steering skills improvement product. As products are conceived, FES will use trademark registration to create and protect brand identity.

While branding is important, IP protection is even more so. Patents and trade secrets are the only barriers smaller companies have to discourage larger firms from just copying successful products. Strong patents are also a key to increasing the value of FES over time. We will aggressively protect new concepts and embodiments.

Our first patent application was filed on January 23rd, 2008 (SHIFT LIGHT SYSTEM AND METHODS, US Patent Application #12/018,759) and covers the new IP contained in the ProShift. Some items worth mentioning:

- Claims on using user selectable color elements (specifically an RGB LED);
- Claims on supporting gear dependant shift points;
- Claims on user configurable control outputs;
- Claims on having these control outputs user configurable from simple digital outputs to a bi-directional communications bus to support advanced optional modules.

The second patent submission is nearing completion. It addresses the area of real-time driver feedback for improved car control. Prior art has been searched, and relevant green fields have been identified. We will file in July. More details will be shared post filing.

TrackCoach™ Output Modules

The ProShift MCU can't drive large current loads. Therefore we have designed a pair of output modules (available at the end of summer) to support higher current demands.

The first of the units is based on simple relays or FET current switches (final design still being prototyped).

The second unit is more exiting. It is based on emerging driver technology used inside automotive engine control computers. This module relies on using the shift light output lines as a bi-directional communications bus, and can inform the shift light of problems with the driven loads, like short or open circuits. The bus is addressable, allowing for multiple output modules to be used with a single shift light.

We are currently working with the development kit and prototype driver boards. Because of the long development and testing timelines required for engine management, it's likely that the chosen controller will be for sale in our product before any other application! No other product like this exists in the automotive aftermarket. Features like these are perfect examples of the types of innovation that FES brings to the market segments.

TrackCoach™ CAN-BUS Version

The newest Mini Cooper models are even more networked than the first generation new Mini. Because of this, many of the signals that used to be available on discrete wires are now only available via one of the many buses that move data around the various modules in the car. Vehicle speed is one signal that used to be available via a discrete wire but is no longer. We are creating a CAN version of the ProShift—using the same small enclosure— to meet the needs of the latest version of Mini, and many other cars as well.

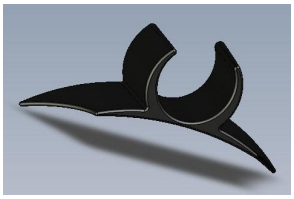
The CAN-Bus is widely used in existing cars already and will be mandated by the EPA for all new cars starting 2009.

With the move to a CAN version of the TrackCoach ProShift, a much wider range of car models can be addressed quickly. Hooking up to the car will be simplified too by relying on standardized connectors.

"The ProShift CAN version simplifies the move to other car brands than Mini Cooper"

3D CAD/ 3DPrinting / Injection Molding

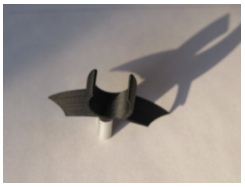
One thing we learned while making the case work for the ProShift is that it's very, very expensive to make inexpensive parts. Design work costs about $500 per part. Simple prototypes are $500 each. Traditional injection molding starts at $7000 per mold.



3D SolidWorks Model of the ProShift Mount clip

To lower these costs, we're adopting SolidWorks as our 3D CAD environment. We've also discovered a really neat technology: 3D printing. We've signed up as members of TechShop to give us access to a vast array of machine tools, and a 3D printer is one of them.

We've also started working with a fast turn low cost injection molding company called Proto-Mold.



Using 3D printing to prototype injection molded parts ensures a perfect fit and no wasted $ on bad molds.

By adopting all these cost-saving techniques, we've dropped the launch cost of injection molded parts by about 75%

Exposure and Marketing

One of us writes articles for a couple of automotive outlets. In the last couple months, Matt has written 2 columns, and 3 articles for *MC Squared,* written a review of the much anticipated new Challenger for *LeftLaneNews* and is finishing up an article for the *North American Motoring Alliance Magazine* on parts testing and data interpretation.

Matt is the technical editor of MC Squared magazine, the premier print journal covering the new Mini Cooper. LeftLaneNews is an up-and-coming web outlet for fast breaking news in the automotive market that is growing rapidly and aims to challenge Edmunds.com as the place to get car information. North American Motoring is the largest Mini Cooper forum in the world.

We also ran our first add!

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Fast Easy Solutions for Your Car!

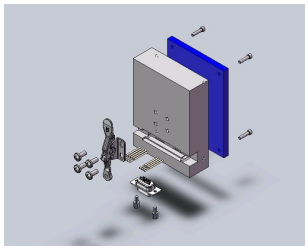
Data Acquisition, Visualization, Logging and Analysis products for the automotive enthusiast.

Our Mission

By focusing on diagnostics, data collection, storage and displays, FES plans to bring a new generation of automotive aftermarket products to the end-user that were previously available only to high budget race teams or corporate development groups. The basic idea is to bring the advantages of low cost computing and industrial networking tools to market, starting in the automotive markets and growing from there. By combining state of the art technologies and business practices, we'll be able to deliver **more for less**, at prices that lock out less efficient companies.

Testing Philosophy

Many small companies really let down their customers by not testing product or sub-assemblies before they ship them out. At FES, we will never use the customer as the quality control group! To this end, we have made our first test fixtures to check ProShift circuit boards when the come in from the board house. The assembly shown was designed using SolidWorks 3D CAD software and made on our own Sherline milling machine. Boards are clamped to the fixture using toggle clams, and Pogo Pins (spring loaded contacts) touch the board at the solder pads for the external wiring. At first, boards will be tested manually by running them through their paces via a couple of function generators. As volume grows, we will automate testing, including solid state color sensors to ensure not only that the board works as desired but that the RGB LED meets both operational and brightness requirements.



Automated testing makes better products, reduces returns and best of all, increases customer satisfaction!

"At FES, we will never use the customer as the quality control group!"