

SATELLITE AIDED TRANSMISSION SYSTEM

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Abstract— This Paper Proposes the entire study of satellite aided transmission system. The satellite Aided Transmission System uses GPS data and the navigation system to predict the road ahead. It then automatically chooses the right gear on the 8-speed transmission delivering power smoothly without any unnecessary gear changes. It was initially introduced in Rolls Royce Wraith in the year 2013 in Geneva Auto-show.

I. INTRODUCTION

The Wraith uses GPS data to determine the road and conditions in real time. The data is then used to anticipate how and when to shift gears, in what is called as Satellite Aided Transmission (SAT). For example, if the SAT determines it is on a twisty road and a turn is approaching, it knows to hold the gear it is in, rather than upshift as it might if it were going straight.

Additionally, the Wraith's navigation system also gathers and compiles anonymous real-time traffic data from cellphones in commercial vehicles and taxis. It then uses this data to update the travel route every three minutes.

Satellite Aided Transmission (SAT) technology takes the power-train to a new level of effortless delivery, one that perfectly suits the Rolls-Royce Satellite Aided Transmission. It uses GPS data to see beyond what the driver sees; it anticipates his next move based on location and current driving style, then selects the most appropriate gear for the terrain ahead. Corners, motorway junctions and roundabouts are all anticipated in advance meaning Wraith is constantly poised to deliver on its promise of performance.

A more polished, effortless driving experience and even better response brings a new, more dynamic dimension to the famous Rolls-Royce trait, waft-ability. For over a century a Rolls-Royce motor car has featured technologies designed to support occupants discreetly, delivering a peerless driving experience epitomised by the term 'effortlessness'. In every Rolls-Royce these assist the driver when called upon, but are prepared to return without fuss to the background when no longer required.

One Rolls-Royce rep noted to use it on roads you are intimately familiar with. Luckily I have to go up a hill on the main entrance to my neighbourhood. And indeed, I do believe the Rolls-Royce Wraith looked at the upcoming topographical differences to drop the gear down before I started climbing. However, on one occasion I did feel a slight hesitation and then a mild clunk when the transmission downshifted. There are some large trees coming up the hill. Would the slightest blockage of the GPS prevent the system from working optimally. Not enough information is given. But it would be nice to have a screen on the infotainment display for automotive geeks to show if the GPS is getting signal and then sending the information to the transmission with a gear indicator. The satellite-aided shifting technology was developed by a Rolls-Royce engineer who had begun developing it while assigned to BMW's Formula One team. Rolls-Royce is the first to get the system, but parent company BMW AG may use it in future vehicles sizes. Information from the navigation system also can be used to optimise the gear changes by predicting the driver's next move.

It features a sleek, luxurious look that embodies power. Under the hood you'll find 624bhp/465kW thanks to a V12 engine paired to an 8-speed automatic ZF transmission. The idea isn't to take away control from the driver, but rather give them some extra help for optimal vehicle performance. It's similar to the technology BMW's ActiveHybrid 5 uses, which tracks topography to improve fuel economy. According to reviews, the technology actually works pretty seamlessly and quietly. In fact, Hartnett dares you to detect when the car is shifting gears. If only I could get my hands on a Wraith to take him up on this.

Using GPS, the car figures out what upcoming stretches of road look like, and pre-shifts accordingly. Sudden, jarring downshifting is a thing of the past, and the drive through a sharp turn or a roundabout is smoother than ever before. SAT is just the latest in a slew of remarkable advances in automatic transmission technology that likely are the death knell of manual shifting, at least in the United States (where [only 3.9 percent of cars sold in 2011 were manuals](#)).

That's a sad thing for old-school driving enthusiasts. But it's good news for the future of cars, which are getting incredibly smart and ever more efficient. With technology like this, it's a short hop to a future where machines play chauffeur, and humans stick to being passengers. It's not that it's the fastest, most powerful car Rolls Royce has ever made. It's not the roughly \$320,000 asking price. It's not the two automatically closing, rear-hinged doors. Specifically, it's how the Wraith's eight-speed automatic transmission is linked to a GPS receiver. The car uses satellites to constantly determine what road you're driving on and in what conditions. It then uses this data to anticipate how and when to shift gears.

For example, if this Satellite Aided Transmission (SAT) determines you're on a twisty road in Malibu and you're coming into a turn, it knows to hold the gear you're in, rather than upshift as it might if you were going straight. SAT is said to be the most recently coined in the automotive technology.

on”, “or”, “of”, “the”, “to”, “with”.

The **Rolls-Royce Wraith** is a four-seat *coupé* made by [Rolls-Royce Motor Cars](#) and based on the chassis of the [Rolls-Royce Ghost](#). The vehicle was announced in January 2013 and unveiled at the 2013 [Geneva Motor Show](#). It has a base price of £229,128 in the United Kingdom. Its chassis was designed by Pavle Trpinac. Deliveries are expected from 4th quarter of 2013. All models include the ZF"8HP90" 8-speed automatic transmission.

The name Wraith comes from an old Scottish word meaning Ghost or Spirit, a name it is sharing with the [1938 model](#) by the [original Rolls Royce company](#). Rolls-Royce Motor Cars proudly presents the world debut of Wraith, the most powerful and dynamic Rolls-Royce in history. At its heart lie hallmark Rolls-Royce attributes of luxury, refinement and hand-craftsmanship, but the new model from the world's pinnacle super-luxury marque also presents a unique character defined by power, style and drama. With just a hint of the noir.

“Today we launch the ultimate gentlemen’s gran turismo, a car that embodies the spirit of Charles Stewart Rolls,” commented Torsten Müller-Ötvös, CEO Rolls-Royce Motor Cars. “The most powerful Rolls-Royce in history, Wraith promises the sense of adventure and speed that drove our founding forefather. But of course, Wraith’s starting point is luxury, refinement and quality, traits that remain as important to Rolls-Royce customers today as they were more than a century ago.”

Rolls-Royce Chairman and BMW Group board member Harald Krüger added the following: “The BMW Group today reconfirms its full commitment to the future of Rolls-Royce. Growth and a prosperous future lie ahead thanks to continued investment, careful brand stewardship and the launch of groundbreaking new models like Rolls-Royce Wraith, a magnificent addition to the product range.”

In profile, Wraith’s sweeping fastback design gives the car its unique character. Bold lines, tension in the panels and a raked rear screen evoke the image of a world class athlete poised in the starting blocks. Further expression of dynamic intent can be seen in Wraith’s deeply recessed grille, wide rear track and dramatic two-tone presentation.

Coach doors open to reveal a sumptuous interior complete with softest Phantom-grade leathers and expanses of wood called Canadel Panelling. Named after the famous cove in the South of France where Sir Henry Royce and his design and engineering teams spent their winters, this contemporary and tactile finish sweeps through the interior, cossetting four occupants in a space bathed in light and warmth.

The interior ambiance is complemented by Starlight Headliner, a Bespoke feature available beyond Phantom family cars for the first time. 1,340 fibre optic lamps are hand-woven into the roof lining to give the impression of a glittering, starry night sky.

Performance delivers on the promise of Wraith’s styling. Power delivery is effortless, but dramatic, thanks to a V12 engine married to 8-speed automatic ZF transmission. 624 bhp / 465kW is available to the driver while the 0-60 mph sprint is achieved in 4.4 seconds, compared with 563 bhp / 420kW and 0-60 in 4.7 seconds for Ghost. avoid confusion, the family name must be written as the last part of each author name (e.g. John A.K. Smith).

- Elegant fastback design hints at dynamic prowess of the most powerful Rolls-Royce ever: 624 bhp/465 kW, 800 Nm from 1,500 rpm : 0-60 mph in 4.4 seconds (0-62 in 4.6)
- Debut of Satellite Aided Transmission. A technology that uses GPS mapping data to ensure the correct gear is always pre-selected for the road terrain ahead
- Voice activated connectivity augments effortlessness – the ‘on-board valet’
- Canadel Panelling sweeps through a sumptuous, contemporary and yacht-like interior cabin affiliation must include, at the very least, the name of the company and the name of the country where the author is based (e.g. Causal Productions Pty Ltd,

About the engine:

CYLINDERS

V12

DISPLACEMENT

6592 cm³

POWER

465 KW @ 5600 RPM

632 HP @ 5600 RPM

624 BHP @ 5600 RPM

TORQUE

590 lb-ft @ 1500-5500 RPM

800 Nm @ 1500-5500 RPM

FUEL SYSTEM

Direct Injection

FUEL

Petrol

CO2 EMISSIONS

327 g/km.

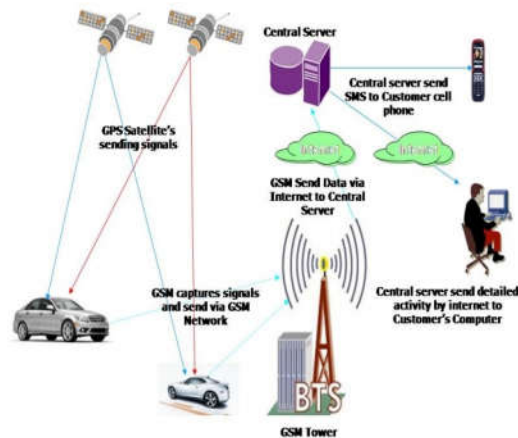
Dimensions:

Wheelbase

3,112 mm (122.5 in)

Length

5,268 mm (207.4 in)



Width

1,948 mm (76.7 in)

Kerb weight

2,440 kg (5,379.3 lb)

Top Speed:

155mph or 249km/h

But the one the company is really proud of is the satellite aided transmission (SAT) system, which makes its debut in the Wraith. Here, a GPS connection to the 8-speed ZF auto allows the transmission to see junctions, roundabouts and topographical shifts ahead and map out gear changes in advance. Rolls-Royce says SAT won't be immediately available everywhere as it is dependent on the the quality of the available mapping data.

Rolls-Royce spokesman Gerry Spahn says the system works especially well on curvy terrain, off-ramps, or roundabouts. As the car heads into a series of curves, for example, the SAT will automatically hold a lower gear to prevent midcorner upshifts and to avoid upsetting the car's occupants with needless gear changes. In testing on public roads, the system has reduced the number of automated shifts by up to 30 percent, Spahn says. Besides reducing wear and tear on the transmission, the system also improves responsiveness and fuel economy. Because it requires no additional components beyond existing sensors, controllers, and the navigation system, no weight is added to the vehicle.

The SAT isn't mapped for altitude and topography, so it can't anticipate hills and change gears accordingly. But that kind of functionality could be baked into a future version.

Wraith debuts the most intelligent drive train ever to feature in a Rolls-Royce, including the application of ground-breaking technologies like Satellite Aided Transmission (SAT). This processes GPS data to predict the driver's next move and automatically select the right gear for the road ahead. Unnecessary gear changes are thus avoided, augmenting the famous Rolls-Royce trait of waftability and ensuring Wraith is constantly poised to deliver on its dynamic promise. Following a sweeping bend, for example, the optimum gear is always pre-selected for effortless acceleration.

Complementing Satellite Aided Transmission, Rolls-Royce Wraith's further dynamic enhancements include a more direct steering response to aid precision in corners, as well as more dynamic spring and damper settings.

CONCLUSION:

The Satellite Aided Technology (SAT) is said to be one of the most innovative technology in the automobile technology. It was initially founded by BMW and then it was introduced in Rolls Royce Wraith. This technology is said to be a one of the kind, which no Automobile company found this technology. It was checked by many car enthusiasts, car critics, car journalists and they all appreciated this newly found technology and they all gave a thumbs up to this technology. After checking this technology in many roads, highways, subways and mainly in mountain roads and found that it was a success and it works absolutely as it is given in the specifications. It worked absolutely great changing to the right gear for the particular curves and turns and transmitting the required power. But still some critics said that it lacked perfect shifts during densely forest areas, fully bushed areas, etc. But still many declared as a successful and innovative technology.

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