TOKYO MOTOR SHOW 2017
BEYOND THE MOTOR

45TH TOKYO MOTOR SHOW 2017

A REPORT

Submitted by

GOKUL M - 15104018

Pursuing

BACHELOR OF TECHNOLOGY

IN

AUTOMOBILE ENGINEERING

HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE

HINDUSTAN INSTUTE OF TECHNOLOGY AND SCIENCE

DEPARTMENT OF AUTOMOBILE ENGINEERING

SCHOOL OF MECHANICAL SCIENCES

CHENNAI 603 103

ACKNOWLEDGEMENT

It's a matter of pride and privilege for me to express my deep gratitude to respected **CHANCELLOR MAM, PRO CHANCELLOR SIR AND DIRECTOR SIR** of HITS for providing me for the necessary facilities and support to attend the Motor Show.

I wish my heartfelt gratitude to **Mr.K.KAMALAKANNAN** Head of the Department, Automobile Engineering for much of his valuable support. I would like to thank my class teacher **Mr.U.YASHVANTH** for allowing me to attend the Motor Show.

I would also like to thank **Dr. DAVID T. EASOW,** Deputy Director, International Affairs for making all the arrangements facilitating my travel to Tokyo, Japan.

Finally, I would like to thank my parents for supporting me through all the process.

Ref. No.

HINDUSTAN UNIVERSITY
HINDUSTAN INSTITUTE OF TECHNOLOGY & SCIENCE

Preliminary Application Form - International Student Exchange /Study Abroad/Visit/ Summer Program / Internship / Study Tour / Project Participation

Affix Passport Sized Photograph with white background here

Note: Below requested details to be typed, printed, signed and to be submitted to internation along with photocopy of your passport, 10th, 12th and all semester mark sheets.

Name: Gokul M Gender: Male

Department: B.Tech Roll No.: 15104018

Course: Automobile Current Year: 3 Semester: 5

Marks 10th: CGPA: 8.2 12th : 70.58% Graduation Current CGPA: 6.58

Any Arrears: 2 Current Course - UG

Mobile No: 9176683209 Res. Landline:

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Passport No: L9272619 Nationality: Indian Validity: 20/05/2024

Choice of Exchange / study abroad / summer program / Academic internship Institution:

1. Equivalent Program:
2. Equivalent Program:
3. Equivalent Program:

Proposed Exchange / Study Abroad / Internship Period: ONE SEMESTER – **Fall / Spring'**

Describe your interest and reason for participating in the International program:

It will be a very great opportunity to learn from the industry professionals and have a good networking with the Japanese automotive professionals. This experience will also help me improve my technical knowledge in the field of automobile engineering.

I, ……Gokul M……. am willing to go for international program. I am aware, once the application is processed and / or selected for the program, I cannot withdrew, change or cancel. I agree to abide by all the norms of Hindustan University and partner intuition, including charges if any.

I have obtained the permission from my parents and department for participating in the International Program. My Parents have agreed to bear all the expenses for me to participate in the international Program.

Applicant's Signature Date Class Teacher Name & Sig. HOD Name & Sig

Dr. G. Ilavazhagan

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INTRODUCTION

The Tokyo Motor Show is a biennial auto show held in October–November at the Tokyo Big Sight, Tokyo, Japan for cars, motorcycles and commercial vehicles. Hosted by the Japan Automobile Manufacturers Association (JAMA), it is a recognized international show by the Organisation Internationale des Constructeurs d'Automobiles, and normally sees more concept cars than actual production car introductions which is the reason why the auto press see the show as one of the motorshow's big five.

The show, originally called All Japan Motor Show was first held in an outdoor venue called Hibiya Park, the show was considered a success with 547,000 visitors over ten days and 254 exhibitors displaying 267 vehicles, but of the number of vehicles only 17 of them were passenger cars as the show was dominated by commercial vehicles. In 1958, due to construction of a subway and underground parking lot near Hibiya Park, the show was shifted to the Korakuen Bicycle Racing Track. The show, as the previous year was marredby heavy rain, in 1959 the event moved indoor to its newly opened Harumi Showplace venue which was three times the size of its previous venue.

Onward from 1973, as the organisers decided not to host a show for the following year due to the international energy crisis and the show became a biennial event. The show relocated to its current venue, the Makuhari Messe in 1989 and due to high public demand for vehicles in everyday use and the fact concept cars dominate the show, the show returned to being an annual event from 2001 to 2005 with a show for passenger cars and motorcycle and another for commercial vehicles for the following year. However, from 2007 onwards the event has once again returned to a biennial schedule which combines both passenger and commercial vehicles, including motorcycles and auto parts.

ABOUT THE CITY

Tokyo, officially Tokyo Metropolis, is the capital city of Japan and one of its 47 prefectures. The Greater Tokyo Area is the most populous metropolitan area in the world. It is the seat of the Emperor of Japan and the Japanese government. Tokyo is in the Kantō region on the southeastern side of the main island Honshu and includes the Izu Islands and Ogasawara Islands. Formerly known as Edo, it has been the de facto seat of government since 1603 when Shogun Tokugawa Ieyasu made the city his headquarters. It officially became the capital after Emperor Meiji moved his seat to the city from the old capital ofKyoto in 1868; at that time Edo was renamed Tokyo. Tokyo Metropolis was formed in 1943 from the merger of the former Tokyo Prefecture and the city of Tokyo.

From what I have observed, this city is very organised and neat. The traffic is perfectly managed and there are sidewalks on almost every road. Pedestrians and cyclists use the sidewalk. There are signals even for the pedestrians and cyclists, making it easier to cross the roads. All the vehicles were very well maintained, including heavy vehicles like trucks and buses. There was no dust found in the city despite the area being near the sea.

Personally, I was very much impressed by the city and its people. It’s amazing.

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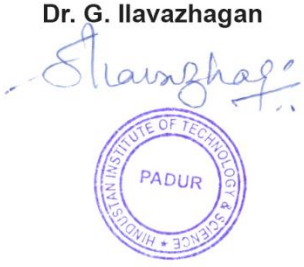


ABOUT MY ACCOMODATION

My accommodation was a capsule room in Tokyo Ariake Bay Hotel. It was about 2 miles from Tokyo Big Sight. The capsule room is a modular plastic or fiberglass block roughly 2 by 1 by 1.25 m (6 ft 7 in by 3 ft 3 in by 4 ft 1 in). Facilities differ, but most include a television, an electronic console, and wireless internet connection. The capsules are stacked side-by-side, two units high, with steps providing access to the second level rooms. The open end of the capsule can be closed, for privacy, with a curtain or a fibreglass door. Luggage is stored in a locker; and washrooms are communal. Guests are asked not to smoke or eat in the capsules. Some hotels also provide restaurants (or at least vending machines), pools, and other entertainment facilities.

It was definitely a new and an amazing experience to stay in a capsule room. Only the clothes and footwear provided by the Hotel is allowed inside the room area. These clothes are use and throw and the hotel provides new clothes every day. This helps the room to be clean and hygienic. The toilets and bathrooms are shared but, they are extremely clean and hygienic. Food is allowed only in the eating area and not in the capsule.

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TOKYO MOTOR SHOW

The motor show had numerous companies showcasing their latest production cars, concepts and their motorsport equipment. This helps the consumer to be up to date regarding the latest automobile technologies and it helps them get an idea of what product satisfies their needs.

CONCEPT CARS:

BMW 8 Series:



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The BMW Concept 8 Series is a concept car that previews the second generation 8 Series, which BMW has announced will be launched in 2018. TheConcept 8 Series was revealed online in May 2017, and has made its public debut at the 2017 Concorso d'Eleganza Villa d'Este. Its design has so far been met with critical acclaim by experts and fans alike. BMW has also confirmed that there will be an M8 and has revealed a camouflaged prototype. BMW's Concept 8 Series arrived on North American shores at the 2017 Pebble Beach Concours d'Elegance.

The Concept 8 Series, according to BMW, is "The essence of a modern-day BMW coupe wrapped up in an enthralling design study." But this is a design study that works and compared to the spy photography of the upcoming production 8 Series, it closely resembles the real thing.

Under the hood sits a 4.4-liter twin-turbocharged V-8 pulled from the brand's other offerings. Other engines will likely make production, such as the company's twin-turbocharged inline-six cylinder, and possibly the top-of- the-line twin-turbocharged V-12 that sits in BMW's M760Li.

Set to signal a new era of BMW design, BMW's Senior Vice President of BMW Group Design, Adrian van Hooydonk, said, "The concept [8 Series] expresses the new BMW design language from all perspectives and in all details. From the dynamic-looking front to the striking flanks to the clean-cut tail end: a few lines and the subtle interplay between surfaces are enough to generate a sense of power and emotion."

BMW Z4:



The BMW Z4 is a range of two-seat roadster and coupé models which have been produced since 2002. It is the third model in the BMW Z Series and the successor to the Z3.

The first generation (E85/E86) was produced with either a soft-top convertible roof, or as a fixed-roof coupe. The second generation was produced in one body style, using a retractable hardtop roof.

The Z4 has been powered by a range of inline-4 and straight-6 petrol engines. For the first generation (E85/E86), all of the engines were naturally aspirated. For the second generation (E89), the first turbocharged engine became available and by 2011 the entire range used turbocharged engines.

The BMW Concept Z4 was unveiled in August 2017 at the Pebble Beach Concourse.

The concept car is a preview of the production version and the roof is a fabric construction, instead of the retractable metal hardtop used by the E89 Z4.

The Z4 platform will also be used by the new Toyota Supra.

Mercedes-Benz Concept EQA:



The German brand envisions the EQA offering multiple battery-pack options, the largest of which will have a charge capacity of more than 60 kWh and provide a driving range of 249 miles on the optimistic European cycle.

Mercedes-Benz notes that charging the floor-mounted battery pack can be done by wireless induction or a typical wall-mounted charger, with the brand noting that the Concept EQA is capable of adding 62 miles of charge to its battery pack in less than 10 minutes when plugged into a rapid charger.

Audi Elaine:



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23-inch wheels in a technical 6-spoke design highlight the confident presence of the SUV coupe. An exterior length of 4.90 meters (16.1 ft), a width of 1.98 meters (6.5 ft) and a height of 1.53 meters (5.0 ft) with a wheelbase of 2.93 meters (9.6 ft) position the Audi Elaine in the C segment, close to the Audi A7. The interior is bright and designed for simplicity. Functions are clearly structured, the number of control elements vastly reduced.

The concept car's lighting technology is an innovation that is visible by both day and night. Digitally controlled Matrix LED units at the front and rear produce an excellent light yield. Minuscule Digital Matrix projectors literally make their mark on the road ahead, turning light into a versatile, dynamic channel of communication with the surroundings. Other road users can also be informed of the various driving modes, such as when the vehicle is driving autonomously.

For its drive, the Audi Elaine uses a configuration that Audi will use in future production models with all-electric drive: One electric motor on the front axle and two on the rear power all four wheels, transforming the high-performance coupé into a quattro in typical Audi style.
320 kilowatts of power – which can even reach 370 kW in the boost mode – provide a fitting level of propulsion. Elaine sprints from 0 to 100 km/h (62.1 mph) in just 4.5 seconds. With the battery's energy content of 95 kilowatt-hours, its range is in excess of 500 kilometers (310.7 miles) (NEDC).

Subaru Viziv:



The Subaru VIZIV is a series of diesel-electric hybrid concept sports SUVs designed and built by Subaru, the first of which was unveiled at the 2013 Geneva Motor Show. The VIZIV series included several signature Subaru design features, such as the use of horizontally-opposed engines and all-wheel drive, and built on prior Subaru hybrid concepts such as the B9SC, B5-TPH, and Hybrid Tourer by using a three-motor layout.

The name "VIZIV" was derived from the phrase "Vision for Innovation" and was meant to illustrate the Subaru concept of "enjoyment and peace of mind."

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Volkswagen Buzz:



The electric ID Buzz, which will go into production in 2022, is inspired by the classic Microbus. First shown in concept form at the 2017 Detroit auto show, the remastered Microbus eschews the original's air-cooled flat-four engine, compact dimensions, and cab-over-axle layout for an electric skateboard chassis stuffed with batteries. The modular architecture will be shared with Volkswagen's other upcoming EVs, including the I.D. hatchback, which will beat the I.D. Buzz to market. Among VW's promises for the electric van are a 250-plus-mile driving range, passenger and cargo versions, and available autonomous capabilities.

Mazda Vision Coupe:



The VISION COUPE represents Mazda's design vision for next-generation models; a more mature expression of KODO applies a Japanese aesthetic to achieve more elegant and premium styling. The exterior features a "one motion" form that exudes a sense of speed and the interior combines three-dimensional depth with a strong longitudinal axis to create a relaxed space that maintains a sense of speed.

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Mazda Kai Concept:



The Mazda KAI CONCEPT compact hatchback heralds a new generation of Mazda cars. Featuring the next-generation SKYACTIV-X gasoline engine, SKYACTIV-Vehicle Architecture and a more mature expression of the KODO design language, the model embodies the technology, engineering and design concepts that will define the next generation of Mazda cars. Refinements in all areas of dynamic performance have produced a dramatically quieter, more comfortable ride and an enhanced performance feel. The KAI CONCEPT features muscular, solid proportions and its form is brought to life by a delicate flow of reflections over the body sides.

ENGINES:

Honda:

RA617H (Formula 1)



INTERNAL COMBUSTION ENGINE

Capacity	1.6 litres
Cylinders	Six
Bank angle	90 degree vee angle
No of valves	24
Max speed	15,000 rpm
Max fuel flow rate	100 kg/hour (above 10,500 rpm)
Fuel consumption	105 kg 'lights to flag' regulated fuel capacity limit
Fuel injection	Direct injection, single injector per cylinder, 500 bar max
Pressure charging	Single-stage compressor and exhaust turbine, common shaft
Fuel & Lubricant	BP Castrol

ENERGY RECOVERY SYSTEM

Architecture	Integrated Hybrid energy recovery via Motor Generator Units
	Crankshaft coupled electrical MGU-K
	Turbocharger coupled electrical MGU-H
Energy Store	Lithium-ion battery, between 20 and 25 kg
	Maximum energy storage, 4 MJ per lap
MGU-K	Maximum speed, 50,000 rpm
	Maximum power, 120 kW
	Maximum energy recovery, 2 MJ per lap
	Maximum energy deployment, 4 MJ per lap
MGU-H	Maximum speed 125,000 rpm
	Maximum power, unlimited
	Maximum energy recovery, unlimited
	Maximum energy deployment, unlimited

TRANSMISSION

Gearbox	Carbon-fibre composite main case, longitudinally mounted
Gear ratios	Eight forward and one reverse
Gear selection	Electro-hydraulically operated seamless shift
Differential	Epicyclic differential with multi-plate limited slip clutch
Clutch	Electro-hydraulically operated, carbon multi-plate
Lubricant	Castrol

HI17TT (IndyCar)



- Engine displacement: 2.2 L (134 cu in) DOHC V6
- Gearbox: 6-speed paddle shift gearbox (must have reverse)
- Power output: Venue dependent 550–750 + 60 hp (410–559 + 45 kW) (push-to-pass)
- Fuel: Sunoco E85 Ethanol + 15% gasoline
- Fuel capacity: 18.5 US gal (70 L)
- Fuel delivery: Fuel injection
- Aspiration: Twin-turbocharged

HR417E (Super Formula)



- Engine displacement: 2.0 L (122 cu in) DOHC inline-4
- Gearbox: 6-speed paddle shift gearbox
- Power output: 543 hp (405 kW)
- Fuel: 102 RON unleaded gasoline
- Fuel delivery: Direct fuel injection
- Aspiration: Single-turbocharged

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Suzuki:

BoosterJet (Swift Sport)



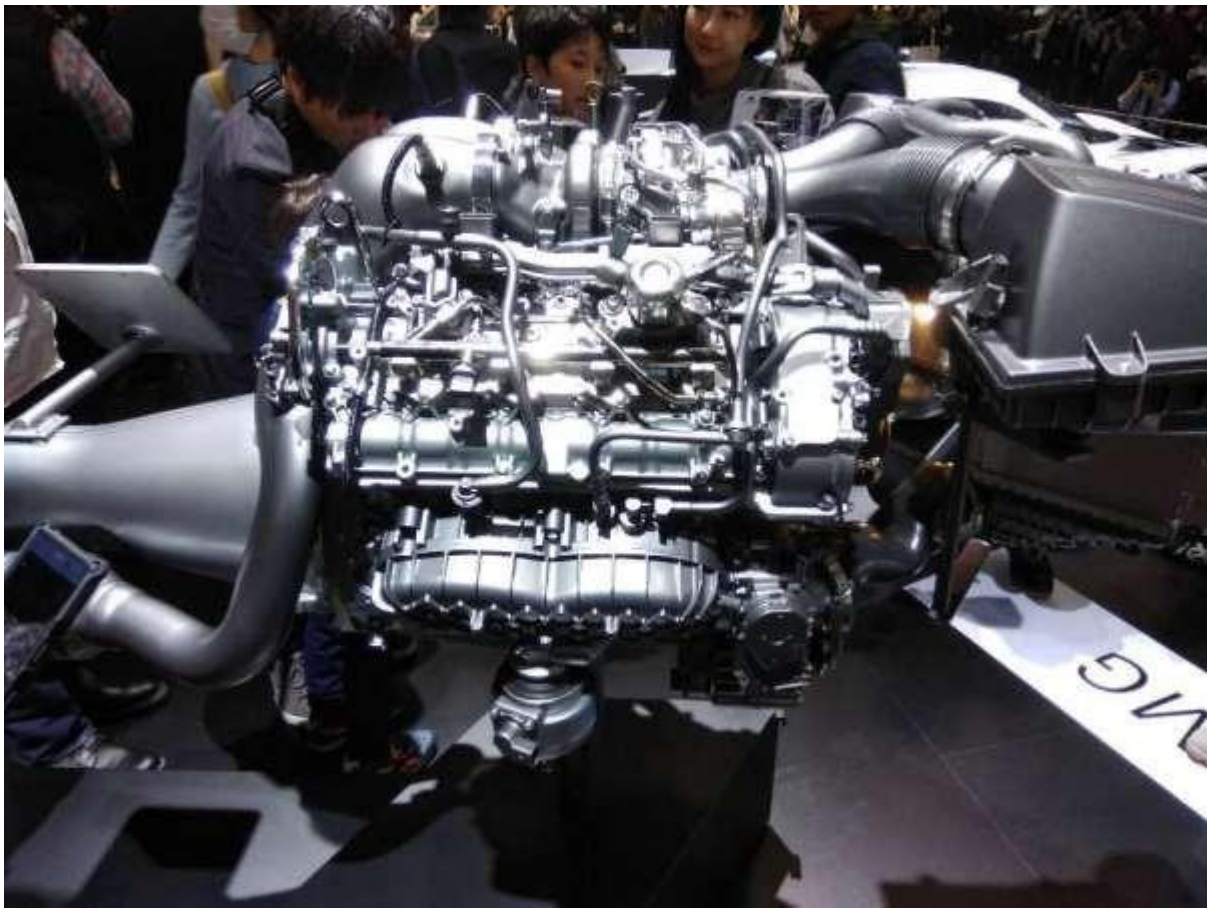
- Engine displacement: 1.4-litre (1400cc)
- Gearbox: 6-speed manual gearbox / 6-speed automatic gearbox
- Power output: 138bhp @ 5500 rpm
- Torque: 230 Nm between 1500-4000rpm
- Fuel delivery: Direct fuel injection
- Aspiration: Single-turbocharged

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Mercedes-Benz:

AMG GT



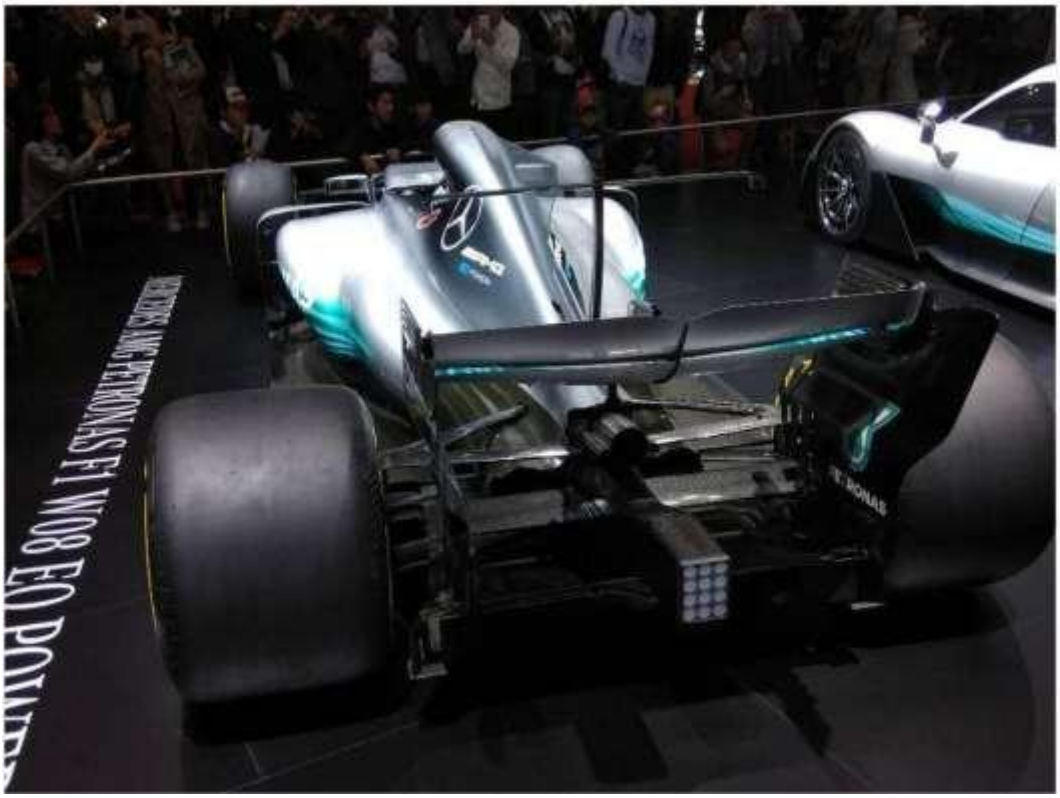
- Engine Displacement(cc): 3982
- Maximum Power: 510bhp@6250rpm
- Maximum Torque: 650Nm@1750-4750rpm
- Engine Description: 4.0-litre 510bhp 32V V8 BiTurbo Engine
- Turning Radius: 5.75 meters
- No. of Cylinders: 8
- Drive Type: RWD
- Aspiration: BiTurbo
- Valves Per Cylinder 4
- Compression Ratio: 10.5:1
- Fuel Supply System: Direct Injection
- Gear box: 7 Speed

MOTORSPORT:

Mercedes-AMG Petronas Motorsport:

W08 EQ Power+ (Formula 1 2017)





The Mercedes AMG F1 W08 EQ Power+ is a Mercedes-Benz Formula One racing car designed and developed under the direction of Aldo Costa, Geoff Willis and James Allison, to compete during the 2017 FIA Formula One World Championship. The car is driven by four-time World Drivers' Champion Lewis Hamilton, who remained with the team for a fifth season, and Valtteri Bottas, who joined the team after 2016 World Champion Nico Rosberg's retirement from the sport.

The chassis was originally named the "Mercedes F1 W08" to represent the eighth Formula One car that Mercedes had constructed since 2010. The "EQ Power+" was added to increase exposure of Mercedes' electric road car models, whilst AMG was included to reflect the relationship between Mercedes-AMG and Mercedes-Benz.

The car made its competitive début at the 2017 Australian Grand Prix, the opening round of the 2017 season.[14] After nineteen races, the F1 W08 EQ Power+ has taken eleven wins (nine for Hamilton and two for Bottas), fourteen pole positions (eleven for Hamilton and three for Bottas), eight fastest laps (seven for Hamilton and one for Bottas) and three 1-2 finishes. The team clinched their fourth consecutive Constructors' Championship at the United States Grand Prix, the 17th race of the season with three races to spare.Hamilton clinched his fourth World Drivers' Championship at the season'snext round, the Mexican Grand Prix.

2016 World Constructors' Championship Trophy



Abt Schaeffler Audi Sport (Formula E):



Audi is the first German automobile manufacturer to race in Formula E. The brand with the four rings is taking ABT Sportsline's slot on the FE grid in the 2017/2018 season. The Allgäu-based team has been successfully present in Formula E ever since the inception of the electric racing series and in the future will be taking care of the e-tron race cars as the fielding team. Competing for Audi will be youngster Daniel Abt (Germany) and title defender Lucas di Grassi (Brazil).

Team Mugen (Super Formula):



Mugen Motorsports (M-TEC Co., Ltd) is a Japanese company formed in 1973 by Hirotoshi Honda, the son of Honda Motor Company founder Soichiro Honda, and Masao Kimura. Mugen, meaning "Without Limit", "Unlimited" or "Vast", (hence the commonly placed word "Power" after, denoting "Unlimited Power") is an engine tuner and parts manufacturer that manufactures OEMparts such as body kits and sports exhausts for Honda Motor Company. Despite the family connections, however, Mugen is not, and has never been, owned by Honda Motor Company; Mugen owner Hirotoshi Honda has been the major shareholder in Honda since his father's death in 1991.

The company tunes and races Honda vehicles in the Super GT championship, and, additionally, sells aftermarket parts to amateur enthusiasts. It was part of partnerships that won the Formula 3000 championship in 1990 and 1991, and that eventually led to Mugen's involvement in Formula One, from 1992 to 2000, and up to 2005 was the exclusive supplier of Formula Nippon engines.

Repsol Honda (MotoGP):



Repsol Honda is a MotoGP team by Honda. Its main sponsors are Repsol and Red Bull. They won the 2017 Constructors' Championship and the Riders' Championship with Marc Marquez. The two riders currently racing for Repsol Honda are Marc Marquez and Dani Pedrosa. Grand Prix motorcycle racing refers to the premier class of motorcycle racing events held on road circuits. Independent motorcycle racing events have been held since the start of the twentieth century and large national events were often given the title Grand Prix, The foundation of a recognised international governing body for motorcycle sport, the Fédération Internationale de Motocyclisme in 1949 provided the opportunity to coordinate rules and regulations in order that selected events could count towards official World Championships as FIM Road Racing World Championship Grand Prix. It is the oldest established motorsport world championship.

Toyota Gazoo Racing:

Toyota TS050 Hybrid LMP1 (World Endurance Championship)



The cars competing in the WEC are divided into two types, sports prototype cars and grand touring cars (GT cars) and these are divided into four classes based on regulations concerning the car and drivers, etc., and each of these classes is competed for driver and manufacturer titles, etc. The names of the classes are LM P1 and LM P2 for the sports prototype cars and LM GTE-Pro and LM GTE-Am for the GT cars. Each car bears stickers showing the class it isparticipating in.

Also, the carmaker-based teams competing in the LM P1 class are required to enter hybrid cars, which to be competitive must mount systems with the most advanced hybrid technologies.

Under the sporting regulations the drivers are ranked by their experience and achievement in motorsport into Platinum, Gold, Silver and Bronze. Each class has specific requirements on driver lineups.



LM P1-H / LM P1:

LM P1-H / LM P1 LE MANS PROTOTYPE 1 (LM P1-H / LM P1)

This is the very top class of the WEC in which the TS050 HYBRID competes. It is split into two classes. One is LM P1-H (Hybrid) for manufacturers' works hybrid-powered cars with Energy Recovery System (ERS) and with a minimum weight of 875kg. The other is LM P1 (Non Hybrid) for privateer non-hybrids. Both of them must be closed cockpit, and the maximum width is 1,900mm. Engine capacity is not subject to restrictions; instead, there is limitation on energy consumption and fuel flow. No Bronze drivers are permitted to enter in this class.

Yaris WRC (World Rally Championship)



Toyota Gazoo Racing WRC is a World Rally Championship (WRC) team based in Finland that serves as Toyota's official factory team. It is operated by four time World Drivers' Champion Tommi Mäkinen and his team, Tommi Mäkinen Racing.[4] The team made its début during the 2017 season, where it entered the Toyota Yaris WRC. The team is a separate entity to the Toyota Gazoo Racing team led by Toyota Motorsport GmbH that competes in the World Endurance Championship.

Andretti Autosport (IndyCar):



Andretti Autosport is an auto racing team that competes in the IndyCar Series, Indy Lights, the Global RallyCross Championship, and the FIA Formula E Championship. It is headed and owned up by former CART series champion Michael Andretti.

Andretti Autosport has won the Indianapolis 500 five times (2005, 2007, 2014, 2016, 2017) and the IndyCar Series championship four times (2004, 2005, 2007, 2012). The team has won the Indy Lights championship twice, in 2008 and 2009. Additionally the team has won the GRC Championship with Scott Speed in 2015 and 2016. During the team's early formative years as Team Green, they won both the Indianapolis 500 and CART Championship in 1995.

Renault Sport Formula One Team (Formula1):



Renault are currently involved in Formula One as a constructor, under the name of Renault Sport Formula One Team. They have been associated with Formula One as both constructor and engine supplier for various periods since 1977. In 1977, the company entered Formula One as a constructor, introducing the turbo engine to Formula One in its first car, the Renault RS01. In 1983, Renault began supplying engines to other teams. Although the Renault team won races and competed for world titles, it withdrew at the end of 1985. Renault continued supplying engines to other teams until 1986, then again from 1989 to 1997.



Renault returned to Formula One in 2000 when it acquired the Enstone-based Benetton Formula team (formerly Toleman Motorsport). In 2002 Renault re-branded the team as "Renault F1 Team" and started to use Renault as their constructor name, winning both the Drivers' and Constructors' Championships in 2005 and 2006.

For the 2011 season the team competed under the name Lotus Renault GP but retained the Renault constructor name. In 2012, the team changed their constructor name to Lotus and operated as Lotus F1 Team until the end of 2015, when they returned to the control of Renault as a works manufacturer.

Renault has also supplied engines to other teams, including Red Bull Racing (2007–2015), Benetton Formula (1995–1997, 2001) and Williams (1989–1997, 2012–2013). In addition to its two own F1 World Constructors' Championships (2005, 2006) and two Drivers' Championships, as an engine supplier, Renault has contributed to nine other World Drivers' Championships. It has collected over 160 wins as engine supplier, ranking third in Formula One history.



McLaren MP4-30 (Formula 1):



The McLaren MP4-30 was a Formula One racing car designed by Tim Goss and Neil Oatley for McLaren to compete in the 2015 Formula One season. The car was driven by 2005 and 2006 World Drivers' Champion Fernando Alonso, who returned to McLaren eight years after he last drove for the team and 2009 World Champion Jenson Button. Kevin Magnussen, who drove for the team in 2014, temporarily stood in for Alonso after a test accident. Additional testing and development work was carried out by Magnussen, Stoffel Vandoorne and Oliver Turvey. The car was the first built by McLaren since the MP4/7A— which contested the 1992 season—to be powered by a Honda engine, known as the RA615H,[10] after McLaren ended their twenty-year partnership with Mercedes at the end of the 2014 season.



The car was nicknamed the "size zero Formula One car" by the team for its distinct sharply tapered rear end, which was achieved by designing the Honda engine to operate at higher temperatures than other engines. At the end of the season, the car recorded a best finish of fifth place at the Hungarian Grand Prix and had scored just twenty-seven points, leaving McLaren ninth in the World Constructors' Championship. Button and Alonso were classified in sixteenth and seventeenth positions respectively, in the World Drivers' Championship, while Magnussen was not formally classified, as he did not start the one race that he entered. This made 2015 the most difficult season in Formula One that the team had endured in thirty-five years, as a string of technical problems and retirements compromised the car's performance. An analysis of the project pointed towards failure in communication between McLaren and Honda, Honda under-estimating the technology required for the engine, and critical faults in the engine's design, as the cause of the team's problems. The partnership was originally intended to last for ten years, but was terminated after three as the MP4-30's successors—the MP4-31 and MCL32—continued to struggle with underpowered and unreliable Honda engines.

SPORTSCARS/SUPERCARS:

Honda NSX (Second Generation):



The second generation Honda NSX, marketed as Acura NSX in North America, is a 2-seater, mid-engined hybrid sports car developed and manufactured by Honda in the United States. It went on sale in the United States in June 2016. It succeeds the original NSX that was produced in Japan from 1990 to 2005.



In December 2007, American Honda CEO, Tetsuo Iwamura, confirmed a new supercar powered by a V10 engine would make its introduction to the market by 2010. The new sports car would be based on the Acura ASCC (Advanced Sports Car Concept) introduced at the 2007 North American International Auto Show. With Honda CEO Takeo Fukui challenging the developers to make the vehicle faster than its rivals, prototypes of the vehicle were seen testing on the Nürburgring in June 2008. On December 17, 2008, Fukui announced during a speech about Honda's revised financial forecasts that, due to poor economic conditions, all plans for a next-generation NSX had been cancelled. In March 2010, the Acura NSX project changed name to Honda HSV-010 GT and was entered in the Japanese SuperGT Championship. The HSV-010 GT is powered by a 3.4-liter V8 sending more than 500 hp (373 kW) through the sequential manual gearbox from Ricardo. The HSV-010 GT was never made into production as a street-legal car.

In April 2011, Automobile reported that Honda was developing a new sports car to be a successor to the NSX. It reported that Honda CEO Ito said the car would be exhilarating to drive but also environmentally friendly. It is expected the vehicle will incorporate an electric drivetrain to give the petrol engine a boost. Back in late 2010, Motor Trend reported that Honda was looking into a mid-engine hybrid electric sports car to be an NSX successor.

In December 2011, Acura announced that they would show the next generation NSX in concept form at the 2012 North American International Auto Show. On January 9, 2012, Acura unveiled the 2012 Acura NSX Concept.

Honda NSX Concept at the 2014 Indonesia International Motor Show

The new concept retained a 2-door coupe, mid-engine layout but with all-wheel drive. The use of a high-tech platform made from lightweight materials permitted weight to be kept down. Power came from a V6 mounted behind the cockpit, sending its output to the rear wheels. Acura's SH-AWD incorporates one electric motor in a dual-clutch transmission to augment the thermal engine thus forming a hybrid setup. Additionally, two more electric motors able to instantly send negative or positive torque to the front wheels during cornering also formed part of the powertrain.

Audi R8 V10:

The Audi R8 (Typ 42) is a mid-engine, 2-seater sports car, which uses Audi's trademark quattro permanent all-wheel drive system. It was introduced by the German car manufacturer Audi AG in 2006.



The car is exclusively designed, developed, and manufactured by Audi AG's high performance private subsidiary company, Audi Sport GmbH (formerly quattro GmbH), and is based on the Lamborghini Gallardo platform. The fundamental construction of the R8 is based on the Audi Space Frame, and usesan aluminium monocoque which is built using space frame principles. The caris built by quattro GmbH in a newly renovated factory at Audi's 'aluminium site' at Neckarsulm in Germany.



In 2005, Audi announced that the name of the successful Audi R8 race car would be used for a new road car in 2007, the Audi R8, based on the Audi Le Mans quattro concept car (designed by Frank Lamberty and Julian Hoenig), appearing at the 2003 International Geneva Motor Show, and 2003 Frankfurt International Motor Show. The R8 development program began in 2004, Lamberty's design being approved and frozen for production. Productionbody prototypes began field testing in January 2006. The R8 road car was officially launched at the Paris Auto Show on 30 September 2006. There was some confusion with the name, which the car shares with the 24 Hours of Le Mans winning R8 Le Mans Prototype (LMP). 6-time 24 Hours of Le Mans winner Jacky Ickx described the R8 as "the best handling road car today".

It is also the first production car with full-LED headlamps.

Mercedes-Benz AMG GT:



The Mercedes-AMG GT (C190 / R190) is a 2-door, 2-seater fastback coupéand roadster produced by Mercedes-AMG. The sports car was presented on 9 September 2014 and was officially unveiled to the public in October 2014 at the Paris Motor Show. After the SLS AMG, it is the second sports car developed entirely in-house by Mercedes-AMG. The car is produced in two performance variations, with the GT S (C120) having a slightly higher performance. Both models went on sale in March 2015, with a GT3 racing variant of the car expected to be released in 2016. All variants are assembled at the Mercedes-Benz plant in Sindelfingen, Germany.




AMG

Subaru BRZ STi:

The Subaru BRZ has been around for quite some time now, and it's racked up about as many special edition models as any model that's out on the market today. Don't look now but it appears that Subaru isn't done with this exercise because it's rolling out a new SE model in time for the 2017 Tokyo Motor Show.



The BRZ STI Sport Edition does not feature any engine upgrades. It still carries the same 2.0-liter four-cylinder boxer engine that pumps out 205 horsepower and 156 pound-feet of torque. It's adequate power for a car like the BRZ, but not enough to really make a statement. This is where STI comes in because this special edition BRZ isn't about power gains; it's about the thrill of the ride and the handles that go with it. A car like the BRZ is prepared to give drivers the thrill of performance driving, regardless of the amount of power it has. That's what the BRZ STI Sport is all about, and rest assured, that kind of selling point is a big reason why the special edition sports car is expected to be a hot-seller once it gets out in the market. Only a limited number of BRZ STI Sport Edition models are expected to be released, including just 100 units of a high-spec version that will come with an exclusive paint finish.

COMMERCIAL VEHICLE:

Isuzu 6x6 Truck:



This is a 6x6 all-wheel-drive vehicle with single wheel tires on all the axles to ensure high rough road performance.

It features the minimum ground clearance, approach angle, and departure angle designed to be larger than ordinary trucks. Thus, this model boasts its tremendous travers ability against rough terrain, weak ground and obstacles. Having such high performance and rigidness, this model will do a great job in the areas hit by major disasters such as forest fires, heavy rains and floods.

VINTAGE CAR:

Porsche 356 Speedster:



The Porsche 356 is a luxury sports car which was first produced by Austrian company Porsche Konstruktionen GesmbH (1948–1949), and then by German company Dr. Ing. h. c. F. Porsche GmbH (1950–1965). It was Porsche's first production automobile. Earlier cars designed by the Austrian company include Cisitalia Grand Prix race car, the Volkswagen Beetle, and Auto Union Grand Prix cars.

The 356 is a lightweight and nimble-handling, rear-engine, rear-wheel drive, two-door available both in hardtop coupé and open configurations. Engineering innovations continued during the years of manufacture, contributing to its motorsports success and popularity. Production started in 1948 at Gmünd, Austria, where approximately 50 cars were built. In 1950 the factory relocated to Zuffenhausen, Germany, and general production of the 356 continued until April 1965, well after the replacement model 911 made its autumn 1963 debut. Of the 76,000 originally produced, approximately half survive.

HYPERCAR:

Mercedes-AMG Project One:



The high-performance plug-in hybrid drive system of the Mercedes-AMG Project ONE comes directly from Formula 1, and was realised in close cooperation with the motorsport experts of Mercedes-AMG High Performance Powertrains in Brixworth. It consists of a highly integrated and intelligently networked unit comprising one hybrid, turbocharged combustion engine with a total of four electric motors. One has been integrated into the turbocharger, another has been installed directly on the combustion engine with a link to the crankcase and the two remaining motors drive the front wheels.



The 1.6-litre V6 hybrid petrol engine with direct injection and electrically assisted single turbocharging comes directly from the Mercedes-
AMG Petronas Formula 1 racing car. To achieve high engine speeds, the mechanical valve springs have been replaced by pneumatic valve springs. The vehicle is mid-engined (ahead of the rear axle) and it can easily reach speeds of 11,000 rpm, which is currently unique for a roadgoing vehicle. However, for higher longevity and the use of commercially available Super Plus petrolinstead of racing fuel, it remains significantly below the F1 engine speed limit.



The electric motors on the front axle are also true rev wonders, with rotor revolutions up to 50,000 rpm – current state of the art is a speed of 20,000 rpm. The very high-revving engine is additionally boosted by a high-tech turbocharger. The exhaust gas and compressor turbines are separated from one another and located at an optimum position to the exhaust side and to the intake side of the V6 engine, and connected to one another by a shaft. This shaft features an electric motor with approximately 90 kW which, dependingon the operating status, electrically drives the compressor turbine with up to 100,000 rpm – for instance when moving off or following load changes. The Formula 1 designation for this unit is MGU-H (Motor Generator Unit Heat).



The major advantage: the dreaded turbo lag – the delayed response to accelerator pedal commands owing to the inertia of the large charger – is completely eliminated. The response time is greatly reduced, and is even shorterthan that of a naturally aspirated V8 engine. The electric turbocharger brings about another advantage: it uses parts of the surplus energy from the exhaust system to generate electricity, and either stores it in the high-voltage lithium-ionbattery as part of recuperation or provides additional drive power by feeding itto an additional electric motor. This motor produces 120 kW, has been installed directly on the engine and features a link to the crankshaft via a spur gear (MGU-K = Motor Generator Unit Kinetic) – another technology that ensures maximum efficiency and performance in Formula 1.

MISCELLANEOUS PICTURES



Posing with Marc Marquez's Repsol Honda



Posing with Valentino DiRossi's Movistar Yamaha



In Front of the Venue (Tokyo Big Sight)

CONCLUSION

How will automobiles evolve? Certainly there is no single, simple answer. Although in the not so distant future motor vehicles may become very different from what we are familiar with today, the fact is that they move people—and not just in a physical sense. They create exciting possibilities and offer continuous opportunity. In their future evolution, automobiles will be able to move muchmore than just people and objects: they will be able to move society forward, transcending previous limitations to provide even greater possibilities. That's why the Tokyo Motor Show will look beyond motor vehicles themselves and transformitself into an event where cutting-edge knowledge comes together, giving rise to wholly new opportunities for innovation and business, where the mobility sector can discover its next directions in the context of our rapidly changing world. It's time to shift to high gear and set out on a borderless journey to redefine the very meaning of "automobile."

Significant changes are taking place in the situation surrounding the automobile industry. Innovative technologies are emerging in rapid succession, and relationships between people and motor vehicles are diversifying.

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