Evolution of Grand Prix

Joyeeta Biswas[1], Ar. Nihal Sigh Verma[2], Ar. Arpita Das[3]

[1]Student**.** Amity School of Architecture and Planning. Amity University Chhattisgarh, India

[2]Research Scholar. IIT Kharagpur

[3]Professor. Amity School of Architecture and Planning. Amity University Chhattisgarh, India

ABSTRACT-

Grand Prix is a Circuit where different types of Motorsport racing held in which Formula One car racing is the highest class of take automatic racing sanction by the (FIA). In Grand Prix series of races held annually in different countries around the world. Each race is held on a specifically designed racetrack and consist of multiple laps around the track.

This paper speaks on the evolution of Grand Prix over the 70 years of its history in architectural aspects and its future prospect and compare between the temporary spaces and the permanent built spaces and its circulation around the circuit.

KEYWORDS- Circulation, Formula 1, History, Temporary spaces, Permanent spaces

INTODUCTION-

A Grand Prix (meaning "great prize" in French) is a type of auto race that is held on a specially designed racetrack. Grand Prix races can be held for a variety of different types of vehicles, including cars, motorcycles, and go-karts. The most well-known type of Grand Prix race is probably Formula 1 (F1), which is the highest class of single-seater auto racing sanctioned by the International Automobile Federation (FIA). F1 Grands Prix are held annually in different countries around the world and are some of the most prestigious and high-profile racing events in the world. Other types of Grand Prix races include IndyCar, MotoGP, and the World Endurance Championship.

Formula 1 (F1) is the highest class of single-seater auto racing sanctioned by the International Automobile Federation (FIA). F1 races, are a series of races held annually in different countries around the world. Each race is run on a specially designed racetrack and consists of multiple laps around the track. The cars in F1 races are some of the most technologically advanced and fastest in the world, with top speeds reaching over 220 mph. The drivers who compete in F1 races are some of the best in the world, and the sport attracts a global audience of millions. The current F1 World Championship is contested by ten teams, each with two drivers. The team that accumulates the most points over the course of the season is crowned the Constructors' Champion, while the driver who accumulates the most points is crowned the Drivers' Champion.

For people that work for Formula One races, the desire of speed and thrills has always been a part of their lives. The team is frequently seeking for that addition to securing, the competitiveness aspect that will put them above the competition.

Formula 1 is a world fertile with designs, thus the best of the best is needed to overcome the numerous challenges they encounter. To design is to recognize a specific requirement that a user or a group of users may have.

As Formula 1 racing technology advances, it is becoming increasingly difficult to drive a Formula 1 car safely, because of numerous variables, such as heat aerodynamics, environmental, noise, control, road, slope/curve, safety, KER, DRS, ERS, track, surface temperature, rain, geographical location, etc... along with the Formula 1 cockpit's design requires thoughtful consideration.

Therefore, there are indeed two characteristics in design: the first enables the driver to operate the vehicle and complete the Grand Prix faster than any other driver; the second requires undergoing the entire Grand Prix and merge the experience for everyone including the spectators and driver.

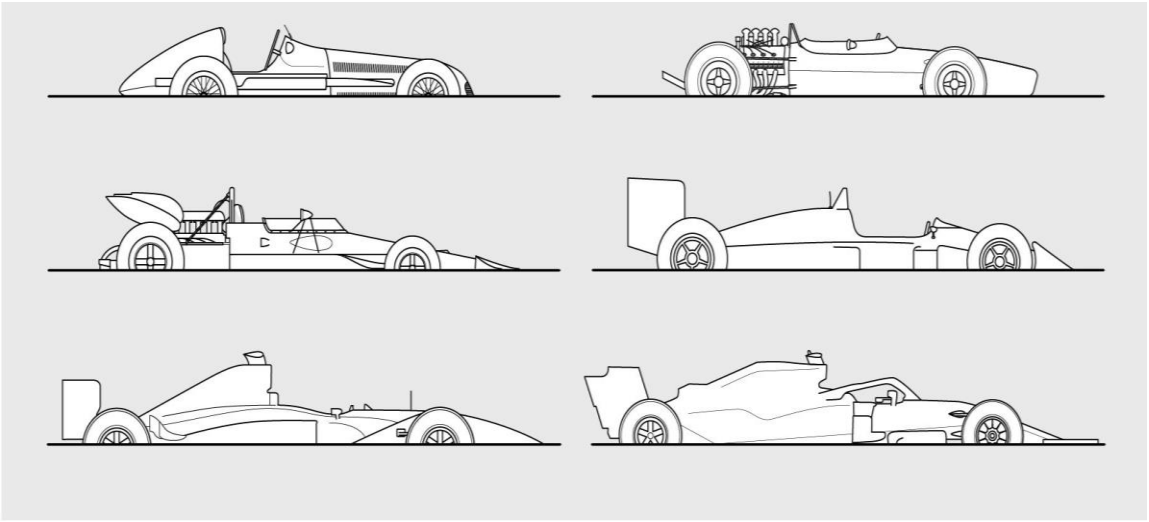
HISTORY-

Formula One could be thought of as NASCAR's posher, wealthier, and more fashionable sibling. The European-born championship is the top-tier of motor racing. Mercedes Benz, Ferrari, and Red Bull are at the top of the auto racing giant that is F1. Formula One, like architecture, is an intensely collaborative practice. In architecture this can become tied to one figure and likewise in F1, the success of a team is all too often pinned on the driver alone. The cars are built from scratch in labs during the off-season, and the driver and on-site team bring that engineering to life. The importance of teamwork is better nurtured in the culture of Formula One than in the discipline of architecture. In contemporary understandings of architecture. While an architect must understand these structural dynamics enough to design a "buildable" building, detailed knowledge of construction techniques is not often seen as part of an architect's job. F1 takes these spatial dynamics one step further, as a sport that prioritizes the situational richness of each track. The Yas Marina Circuit, in Abu Dhabi, is the only track in the F1 calendar to boast a five-star hotel built directly on the track. The Austrian Grand Prix, for example, is incredibly picturesque and pastoral, miles away from the intensity of street circuits such as Monaco or Singapore. Formula 1 is not just for Formula 1 fans - it's also for the super-wealthy, who can watch the races from the comfort of their yachts. Monaco is one of the most expensive races in the world, with tickets selling out months in advance. Formula 1 is the world's second most expensive sport after equestrian. It has a total of 21 races throughout the year across different countries worldwide. There are regulations by the FIA, FIM, and other industry regulating bodies for the racetracks to be complying. This sport consists of the racetrack, the paddock, team buildings, and the spectators' arena. Here is where architectural intervention comes into the picture. There are regulations by the FIA, FIM, and other industry regulating bodies. The racetracks must be designed, keeping the requirements and regulations in mind.

SILVERSTONE GRAND PRIX 1950

The Commission Sportive International of the FIA, the forerunner of FISA, first described Formula One as the top single-seater racing division in world motorsport in 1946, with the category taking effect in 1947. Initial names for this new "International Formula" were Formula A, Formula I, or Formula 1, while names for the related "Voiturette" formula included Formula B, Formula II, or Formula 2. The three International Formulae were then given the "official" names Formula 1, Formula 2, and Formula 3 when the 500c formula became Formula 3 and was recognized internationally in 1950. [3] The formula's initial principles were mostly derived on regulations from before World War II that were based on engine capacity. A new equilibrium between supercharged and regularly aspirated vehicles is anticipated because of the rule. Races between pre-war 1 and 5-liter Grand Prix vehicles were permitted. 5-liter supercharged "voiturettes," while supercharged 3-liter Grand Prix vehicles from before World War II were outlawed. What can be regarded as the first Formula 1 race is a matter of significant contention. The 1946 Turin Grand Prix was the first race run under the new rules, and Achille Varzi won it in an Alfa Romeo 158 Alfetta. However, the race continues on the evolution of basically engines as follows Front engine, rear made engine, 1.5 liter engine, 12 cylinder engine and the arrival of sponsorship, safety and Aerodynamic, ground effect era, 1.5 l Turbo charged engines, 3.5 liter naturally aspirant engines, active Suspension and electronic driver aids, safety, rules and regulation, 3 liter engines, v10 engines and rise of road car manufacturer participants, 2.4 liter v8 engines, cost cutting measures departure of car manufacturers, 1.6 liter turbocharged V6 hybrid power units.

GRAND PRIX



EVOLUTION OF CAR FROM 1950-2020

Thus, we can say that Over the past 70 years, the Grand Prix has evolved significantly. In the early years, the cars were relatively simple, and the technology was not as advanced as it is today. The cars were front-engine and had drum brakes. The engines were naturally aspirated and made relatively low power compared to today's standards.

As the years went on, the cars became more and more sophisticated. The engines became more powerful and reliable, and the technology used in the cars advanced significantly. The introduction of aerodynamics and the use of composite materials in the construction of the cars increased their performance. The cars also became safer, with the introduction of features such as crash structures and energy-absorbing materials.

In recent years, the focus has been on sustainability and the use of hybrid power units, which combine a traditional internal combustion engine with an electric motor. These power units are more efficient and produce fewer emissions than their predecessors.

LAS VEGAS GRAND PRIX

Overall, the Grand Prix has come a long way over the past 70 years, with significant advances in technology and safety. It remains a highly popular and exciting sport, with millions of fans around the world.

ARCHITECTURAL ASPECT OF GRAND PRIX

In terms of the architectural aspects of Grand Prix events, there are a few key features to consider:

- Tracks: Grand Prix events are held on purpose-built racing circuits, which are designed to challenge drivers and provide an exciting spectacle for spectators. These tracks are often complex, featuring a variety of different turns, straights, and other features.

- Pit lanes: Each team at a Grand Prix event has a designated pit lane where they can make repairs and adjustments to their vehicles during the race. These pit lanes are typically located near the track, and are equipped with garages and other facilities for the teams to use.

- Grandstands: Grandstands are large, raised seating areas that provide spectators with an unobst41ructed view of the track. These are typically located at key points along the circuit, such as at the start/finish line or at particularly challenging turns.

- Paddock: The paddock is an area located behind the pits where the teams and their personnel prepare and work on their vehicles. This area is usually off-limits to the public but is an important part of the Grand Prix event.

- Hospitality suites: Many Grand Prix events also feature hospitality suites, which are exclusive areas that offer VIP guests a more luxurious viewing experience. These suites may include private seating, catering, and other amenities

we can also classify the site of Grand Prix in two types according to the nature of its construction which is permanent built spaces and temporary spaces;

PERMANENT BUILT SPACES-

Permanent spaces at a Grand Prix event refer to any structures or areas that are intended to be used on a long-term basis, rather than being set up specifically for the duration of the event and then taken down or removed. These could include things like the race track itself, pit buildings, garages, and other support facilities that are used year-round to support the operation of the event. Permanent spaces are often an important part of Grand Prix facilities because they provide a stable and well-equipped base for the event and can be used to host other motorsports or entertainment events throughout the year. Few examples of permanent built spaces are explained below

TEMPORARAY SPACES-

Temporary space at a Grand Prix event refers to any structures or areas that are set up specifically for the duration of the event, and then taken down or removed after the event is over. These could include things like temporary grandstands, hospitality tents, media centres, and other support facilities. Temporary space is often used at Grand Prix events because it allows organizers to set up the necessary facilities in a short period of time, and then easily take them down once the event is over. This can be more cost-effective and flexible than building permanent structures and can also allow for greater customization of the event layout.

Comparing the two spaces by considering the parameters of the spaces by taking famous places from around the world.

NOIDA'S FORMULA-1 RACING CORCUIT OF INDIA

Also known as Buddha international circuit of India. The Indian Grand Prix of 5.14Km track made by Jaypee group had 16 turns 2 DRS zones and the fastest track on the calendar at that time in Hamilton even compared to SPA, what happens was when we started the Indian government doesn't consider a F1 as a sport they considered it entertainments because of that there are a lot of entertainment taxes and there are no rebates on top of that you have to pay money to the FIA so that your races are into the race calendar, the organization spending a lot of money and at the same time people were not buying tickets, in the first race fans did show up after that the turnout was quite low the stadium was quite empty so financially it made no sense to continue the Indian Grand Prix and apart from that there was another reason is also that the teams also have to go through a lot of hassle and lot of paper work with the customs department because they had to get components ended up getting a lot hassles for the teams as well considering the financial issues the operational issues everyone decided to drop the Indian Grand Prix from 2014, and its sad because now we have a lot of F1 fans if they do a Indian Grand Prix now a lot of people will show up but then all of these issues are not sorted out and I don't see the Grand Prix coming back to the calendar anytime soon as the management isn't working

BAKU FORMULA 1 CITY CIRCUIT

In 2016 Baku Azerbaijan, came into the calendar as an exception/temporary space which has a great impact in the socio economic development of the country hey, as well as the lives of the many locals getting difficult. For event organizers, adopting public assets and public arena such as park squares and street networks as event infrastructure to achieve the goals of a highly coordinated, financial, fee-based private event.

It's becoming an accepted practice and an important part of this. A global mega-event industry with a growing impact on cities

The interrelationship between highly commercialized mega-events and the transformation of their host cities is to create exceptional practice events in public spaces within a limited time frame to achieve international promotion and socio-economic development and it adversely affect the lives of residents

Thinking of Baku City Circuit as an affluent, transient, and politically, legally, and financially dependent region of exception while neglecting and excluding the needs of the locals.

Mega events draw a lot of people, have a wide audience, are expensive, and have an effect on the population of the built environment. In order to prepare for large-scale events under time constraints and strict rules, it is frequently necessary to suspend or modify the legal framework of a city or nation. This requires changing the laws governing planning, taxation, immigration, environmental protection, and the use of public infrastructure, as well as leaving behind a permanent legacy of changes to the urban environment.

The government proposed a strategy to make Azerbaijan the primary tourist attraction in the area, the economic powerhouse large-scale international event that was drawn to Baku, iconic architectural projects by renowned international architects, and numerous luxury hotels that were also opened to reflect the new glamorous image of the city and to host the international visitors drawn by Mega events, which also caused displacement from Central Baku to the Periphery. Also include daily traffic jams and as the preparation lasted for a year the disadvantages are greater.

BAHRAIN'S FORMULA-1 RACING CIRCUIT

The Bahrain International Circuit (BIC) is the venue for the Bahrain Grand Prix, and it has a number of architectural features that make it a unique and challenging track for drivers. Some of these aspects include:

The track layout: The BIC is a 5.412 km (3.363 mi) long circuit with 15 turns. It is known for its long straights and high-speed corners, which make it one of the fastest tracks on the Formula 1 calendar.

The pit lane and paddock: The BIC has a modern pit lane and paddock area, with garages and support facilities for the teams. The pit lane is located on the inside of the track, and the paddock is located behind the pit garages.

Location: Bahrain is the first country in the Middle East to host a Grand Prix, and the Bahrain International Circuit (BIC) is the first purpose-built F1 track in the region. This makes the event a significant milestone in the history of F1 racing and a showcase for the region.

Track design: The BIC is known for its long straights and high-speed corners, which make it one of the fastest tracks on the F1 calendar. It also has a number of other challenging features, such as a series of tight turns and a challenging final corner.

Night racing: The Bahrain Grand Prix is unique in that it is the only race on the F1 calendar that is held at night. The track is illuminated by floodlights, which adds an additional level of challenge for the drivers and creates a visually impressive spectacle for spectators.

The grandstands: The BIC has several grandstands that offer views of different parts of the track. The main grandstand, called the "Tower Stand," is located opposite the pits and offers a panoramic view of the track.

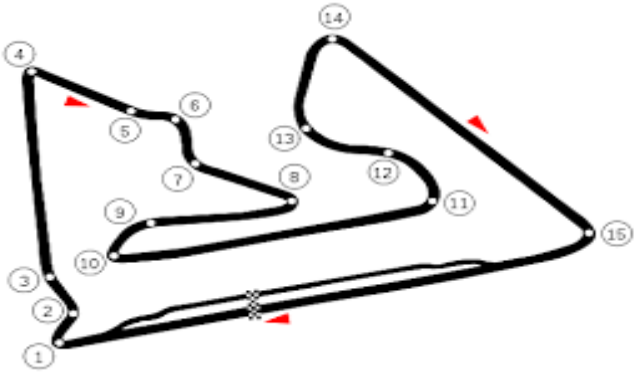
Other facilities: In addition to the track and paddock areas, the BIC also has a media centre, medical centre, and VIP hospitality areas. There are also facilities for spectators, such as restrooms, food and drink vendors, and merchandise kiosks.

Overall, the architecture of the Bahrain International Circuit is designed to accommodate the needs of the teams, media, and spectators while providing a challenging and exciting track for the drivers.

The Bahrain Grand Prix have implemented a number of measures to reduce their environmental impact and promote sustainable practices. Some examples of these initiatives include:

- Renewable energy: The BIC has installed solar panels on the roof of its main grandstand and uses solar power to generate a portion of its electricity. It has also implemented energy-efficient lighting throughout the facility.
- Water conservation: The BIC has installed a number of water-saving technologies, such as low-flow toilets and waterless urinals, to reduce water consumption. It also captures and reuses rainwater for irrigation and other non-potable uses.
- Waste management: The BIC has implemented a comprehensive waste management program to reduce the amount of waste generated during the race. This includes recycling and composting initiatives, as well as efforts to minimize single-use plastics.
- Carbon offsetting: The BIC has partnered with Carbon Clear, a leading carbon management company, to offset the carbon emissions associated with the race. This includes investing in renewable energy projects and other initiatives to reduce greenhouse gas emissions.

Overall, the Bahrain Grand Prix and the BIC have made a number of efforts to consider the environment and reduce their environmental and noise impact. These initiatives demonstrate a commitment to sustainability and responsible resource management.



COMPARISON OF BOTH SPACES

It's difficult to say which is better, permanent spaces or temporary spaces, at a Grand Prix event, as it depends on the specific needs and circumstances of the event. Both types of spaces have their own advantages and disadvantages.

Permanent spaces are typically more expensive to build and maintain, but they can provide a stable and well-equipped base for the event. They can also be used to host other motorsports or entertainment events throughout the year, which can help to generate additional revenue.

Temporary spaces, on the other hand, are generally more cost-effective and flexible. They can be set up in a short period of time and easily taken down once the event is over, which can be useful for events that are held in different locations from year to year. However, temporary spaces may not be as well-equipped or comfortable as permanent spaces, and they may not be able to accommodate as many people.

Ultimately, the choice between permanent and temporary spaces at a Grand Prix event will depend on the specific needs and goals of the event organizers, as well as the budget and other resources available

The design of Grand Prix facilities has evolved significantly since the first modern Formula 1 World Championship race was held at Silverstone in 1950. In the early years of the sport, many of the tracks were relatively simple, consisting of nothing more than a circuit of public roads with a few temporary structures set up for the event. Over time, however, the sport has grown in popularity and professionalism, and the facilities used to host Grand Prix events have become more sophisticated and specialized.

Today, most modern Grand Prix facilities are purpose-built circuits that are designed specifically for the sport of motor racing. These facilities typically include a variety of permanent structures such as grandstands, pit buildings, garages, media centres, and other support facilities. They may also include temporary structures such as hospitality tents, VIP areas, and other amenities.

In terms of architecture, Grand Prix facilities have also evolved to reflect changing trends and needs. Many modern facilities incorporate advanced technologies and sustainable design principles in order to reduce their environmental impact and improve the experience of spectators. They may also include a variety of amenities and features to enhance the overall experience of the event, such as food and beverage outlets, merchandise stores, and other entertainment options

CIRCULATION AROUND THE GRAND PRIX-

During the Grand Prix event, there are likely to be a large number of visitors at the circuit, including drivers, teams, media, and spectators. To manage the circulation of these visitors around the track, various measures are typically put in place. Some possible examples might include:

Vehicle access: Vehicle access to the circuit may be restricted or restricted to specific areas. For example, only authorized vehicles such as team transporters and VIP cars may be allowed in the paddock area.

Pedestrian access: Pedestrian access to different areas of the circuit may be controlled through the use of barriers, gates, or ticketing systems. For example, there may be separate entrances and exits for the paddock, pit lane, and grandstands to help manage the flow of people.

Transportation: The circuit may provide shuttle buses or other forms of transportation to help visitors move between different areas of the facility. For example, there may be buses to transport spectators from the car parks to the grandstands or from the paddock to the pit lane.

Signage: Signage is typically used to help visitors navigate around the circuit and find their way to different facilities or areas. This might include directional signs, maps, or information boards.

Overall, the circulation of visitors around the Grand Prix event is likely to be carefully planned and managed in order to ensure the safety and convenience of everyone at the circuit.

CONCLUSION-

It's difficult for me to say what the future prospects of Grand Prix, as it depends on many factors such as the specific location and circumstances of the event, as well as the trends and needs of the sport. In general, however, it is likely that Grand Prix events will continue to be held in well-designed facilities that are able to accommodate large crowds, provide good views of the track, and meet the safety and logistical needs of the event. These facilities may incorporate various architectural features such as grandstands, VIP areas, media centres, and other support facilities. It is also possible that the use of technology and sustainable design principles will play a greater role in the architecture of future Grand Prix facilities. And also the design in Grand Prix is getting more and more important but the area of information and innovation is getting less.

References

1. FI ARTICLE . (n.d.).
2. Gogishvili, D. (2018). *Baku formula 1 city circuit: exploring the temporary spaces of exception.*
3. Hayes, D. (Director). (2019). *Drive To Survive* [Motion Picture].
4. N.W. Alnaser, R. F. (2007, APRIL). *Architectural, construction and environmental matters of Bahrain's International Formula 1 Circuit.* Building and Environment.
5. Sheckells, S. (2019). *Design, At Speed: The Importance of Design in Formula One Racing.*