

# Revolving Stadium

## (Case Study on General Cricket Stadium)



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### ABSTRACT

We have study on revolving stadium i.e revolving seating arrangement, having a play court that complies standards for international sports events. The stadium is having a column free, which gives an unobstructed view of the play court from anywhere in the stadium. And also to enjoy panoramic view without leaving seat. This large area was to be covered by adopting such a structural system, which can achieve predefined objectives of appealing appearance, cost effectiveness, and ease of construction while using locally available materials, skills and equipment's. An innovative structural system was conceived to attain these objectives. This article discusses evolution process of the system, along with key features of its analysis, design and construction.

**Keywords:** General stadium, Design the base, Design gear system, Control

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### I. INTRODUCTION

Few peoples of course are ever satisfied with their match tickets. No constructive solution for it has ever been offered that is up until this moment. To correct this situation we offer the world my plan for a revolving cricket stadium or any other stadium in which the setting arrangement will revolve around the playground.

The plan is to build a stadium probably it would have to be bowl shape. And it is rest on the wheels and spur gear for rotating the setting arrangement. When game beings to start, the stadium will start to revolve. It revolves slowly, making one complete revolution during one inning of the game. i.e. making two complete revolutions during the course of game.

This project is all about the revolving sitting arrangement and adjustable rooftop of a stadium. The idea is taken from a stadium in china named Guangdong Olympic stadium. This stadium was build up in 2001. It was originally planned to host the 2008 Olympics. This stadium in currently used for football matches. It has capacity of 80,012 peoples. We just took an idea of its adjustable roof and added our idea of revolving sitting arrangement.

The main purpose behind the revolving sitting arrangement is that people can enjoy the game from every

side of the stadium. Moreover one can use it for both indoor and outdoor games. The sitting arrangement is revolve by solar energy stored by the use of solar panels. Hence the stadium is totally eco-friendly. We are looking forward to add more techniques to make this stadium unique.

#### About Stadium

A cricket field consists of a large grassy ground on which the game of cricket is played; this is ostensibly an oval though most cricket grounds would more accurately be described either as a convex set or as a convex polygon with an infinite number of sides. Cricket grounds can be almost perfectly circular, elongated ovals or entirely irregular shapes with little or no symmetry - but they will have entirely curved boundaries, almost without exception. There are no fixed dimensions for the field but its diameter usually varies between 450 feet (137 m) and 500 feet (150 m). Cricket is unusual among major sports (along with Golf, Australian Rules football and baseball) in that there is no official rule for a fixed-shape ground for professional games.

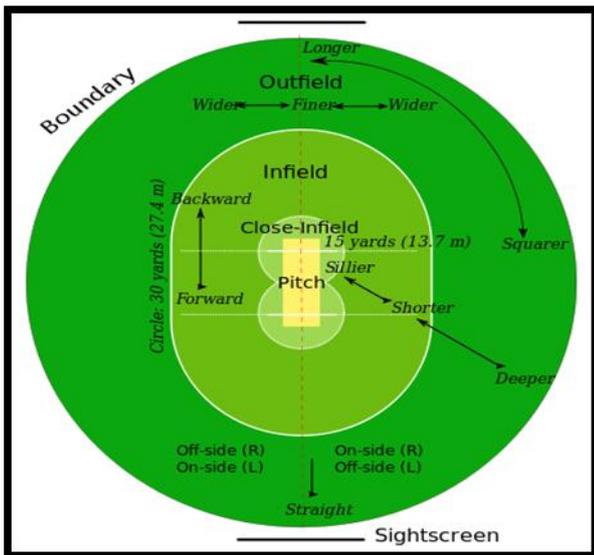


Figure1. Stadium Dimension

**Seating Areas**

The necessary space for seating area is calculated as follows;

Width of the seat	0.5m
Overall depth	0.8m
Seat depth	0.35m
Circulation	0.45m

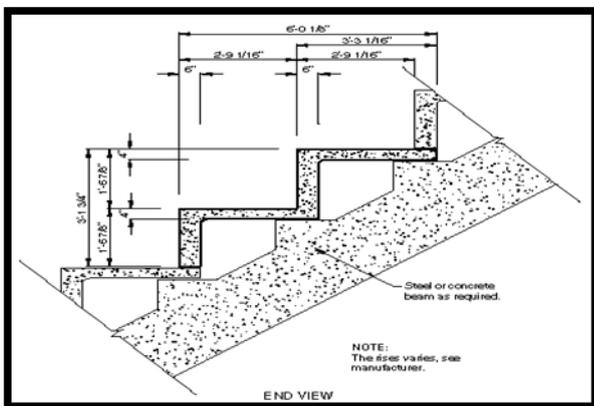


Fig 2. Measurement of seating

The formula to be used in calculating capacity is:

$$\text{Rows} \times \text{Length} \times \text{Inches} / \text{Personal Space} = \text{Seating Capacity}$$

**II. EASE OF USE**

Few peoples of course are ever satisfied with their match tickets. No constructive solution for it has ever been offered that is up until this moment. The peoples cannot enjoy the match in panoramic view without leaving seat. If the any one is seat on east side and he want to see match from north side, then he cannot see.

**III. OBJECTIVES**

- A. To enjoy panoramic view without leaving seat.
- B. Attract More Business.
- C. Novelty and it which can showcase the technology.

**IV. METHODOLOGY**

The plan is to build a stadium probably it would have to be bowl shape. And it is rest on the wheels and spur gear for rotating the setting arrangement. When game beings to start, the stadium will start to revolve. It revolves slowly, making one complete revolution during one inning of the game. i.e. making two complete revolutions during the course of game. The structure comes under dynamic structure. Therefore, is a type of structural analysis which covers the behaviour of structures subjected to dynamic (actions having high acceleration) loading. Dynamic loads include people, wind, waves, traffic, earthquakes, and blasts. Any structure can be subjected to dynamic loading. Dynamic analysis can be used to find dynamic displacements, time history, and modal analysis.

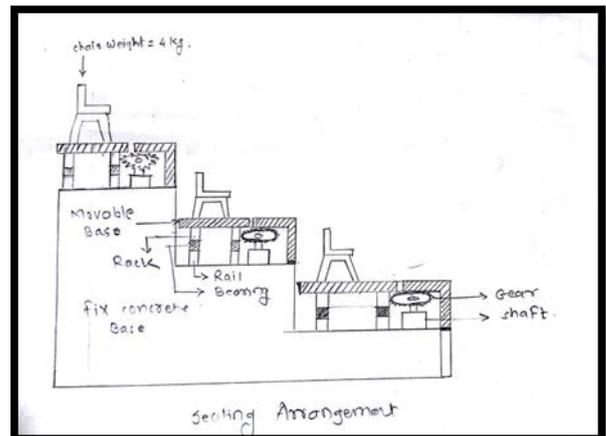


Figure3. Mechanism

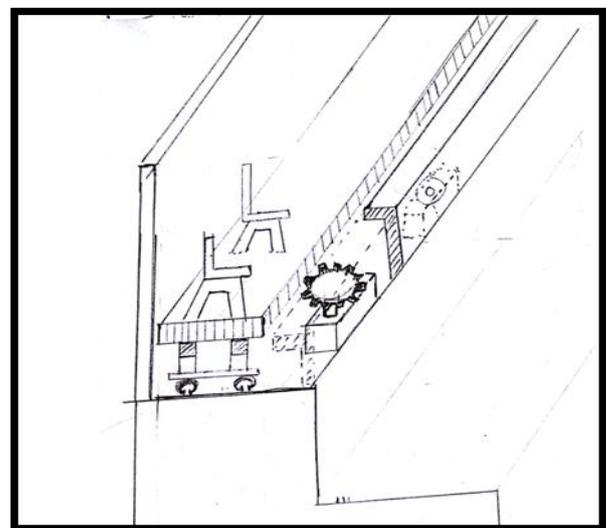


Figure4. Mechanism

## GEAR SYSTEM

A gear or cogwheel is a rotating machine part having cut teeth, or cogs, which mesh with another toothed part to transmit torque, in most cases with teeth on the one gear being of identical shape, and often also with that shape on the other gear. Two or more gears working in a sequence (train) are called a gear train or, in many cases, a transmission; such gear arrangements can produce a mechanical advantage through a gear ratio and thus may be considered a simple machine. Geared devices can change the speed, torque, and direction of a power source.

The most common situation is for a gear to mesh with another gear; however, a gear can also mesh with a non-rotating toothed part, called a rack, thereby producing translation instead of rotation. The gears in a transmission are analogous to the wheels in a crossed belt pulley system. An advantage of gears is that the teeth of a gear prevent slippage. When two gears mesh, and one gear is bigger than the other (even though the size of the teeth must match), a mechanical advantage is produced, with the rotational speeds and the torques of the two gears differing in an inverse relationship. In transmissions with multiple gear ratios—such as bicycles, motorcycles, and cars—the term gear, as in first gear, refers to a gear ratio rather than an actual physical gear. The term describes similar devices, even when the gear ratio is continuous rather than discrete, or when the device does not actually contain gears, as in a continuously variable transmission.

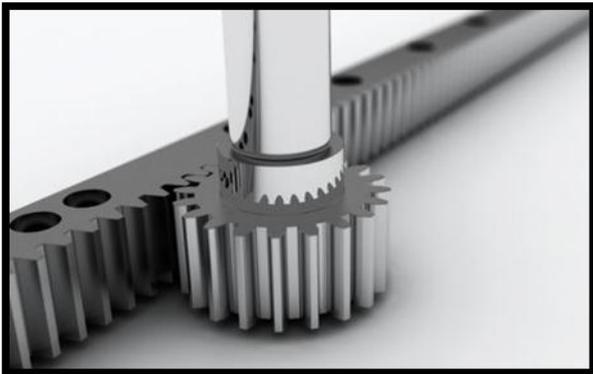


Figure5. Gear mechanism

## V. APPLICATION

These techniques are used revolving restaurant. It used in for rotating towers, which is already applied in Dubai. It can be used in indoor and outdoor stadium.

## VI. CONCLUSION

Peoples can watch the match from every angle. They are satisfied with their tickets. It attracts peoples. It increases the business. It improves the popularity of the game.

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