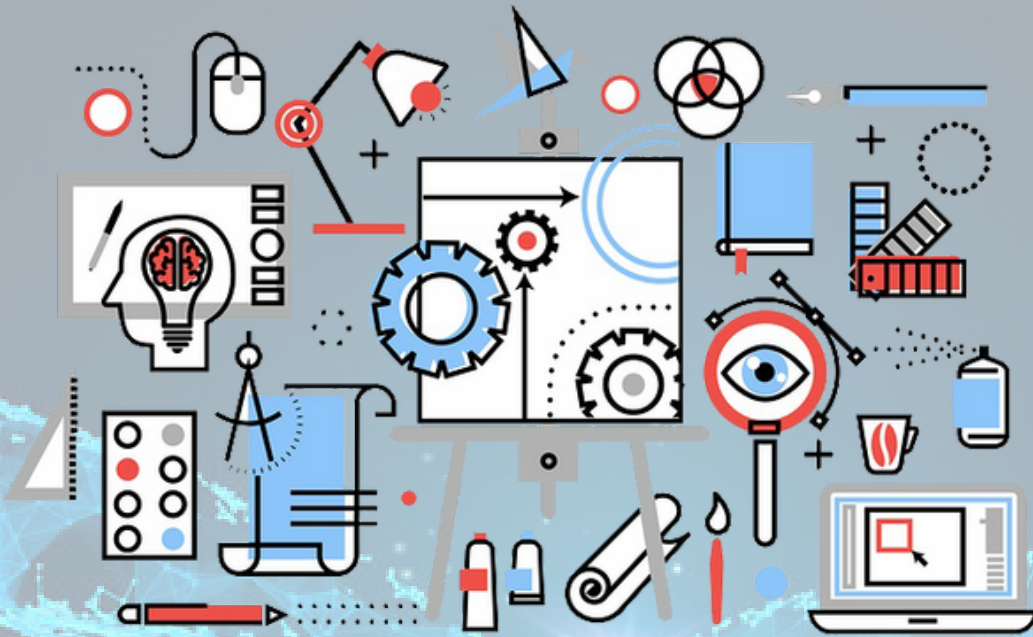




XRIG-IITM



AR TUTORIAL#4

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SLAM (Simultaneous Localization and Mapping).

SLAM, which stands for Simultaneous Localization and Mapping, is a technology used in Augmented Reality (AR) to create virtual experiences in the real world without needing physical markers or tags. This technology is used in markless AR.



Here's how SLAM works in AR:

Localization: The first step is to determine the position and orientation of the device. SLAM uses various sensors, like cameras and motion sensors, to estimate the device's movement and calculate its location in relation to the surrounding environment.

Mapping: Once the device's position is determined, SLAM starts building a map of the environment in real time.

Features, like edges or corners of objects. Act as reference points for the AR system to understand the environment.

Tracking: As the device moves, SLAM continuously tracks its motion and updates the virtual map accordingly. This tracking allows virtual objects to stay aligned with the real world, creating a realistic AR experience.

AR Visualization: Using the information from localization, mapping, and tracking, SLAM overlays virtual objects onto the real-world camera feed. The virtual objects are positioned and aligned in a way that they appear to exist and interact with the physical environment.

Real-Time Updates: SLAM continuously updates the AR visualization as the device moves and the environment changes. This real-time updating ensures that the AR experience remains synchronized with the user's movements.

