1. What We Are Doing

We are creating an Augmented Reality (AR) building gam**e** that uses Computer Vision to let participants build virtual structures using real-world actions.

Participants will stand in front of a camera, and:

- Use hand gestures or simple markers/props to place, move, rotate, and stack virtual building blocks.
- See their actions converted into a live AR construction displayed on a large screen.
- Build towers, bridges, or creative shapes in a short timed challenge.
- Get a score based on height, stability, creativity, and time.

The stall is fully interactive and visually engaging, showing the practical application of AR, gesture recognition, and basic physics simulation.

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2. Requirements

2.1 Hardware Requirements

- Laptop/PC with GPU (NVIDIA GPU preferred)
- HD Webcam or external camera
- Large Display (TV/Monitor/Projector)
- Markers/Props (colored cards or printed AR markers)
- Extension cords + power supply
- Table + stall space (approx. 2m × 2m)

2.2 Software Requirements

- OpenCV / MediaPipe for hand or marker tracking
- Unity3D / Unreal Engine / Three.js for AR rendering
- Python or C# backend for gesture-to-action mapping
- Simple physics engine (Unity Physics or PyBullet)
- Leaderboard UI (HTML or Unity canvas)

2.3 Space & Setup Requirements

- 1× main screen showing AR output
- 1× laptop table

- 1× user interaction zone in front of camera
- Posters explaining rules + AR concept
- 2–3 volunteers for guidance and flow control

2.4 Manpower Requirements

- 3-4 volunteers will be procured by the coding club for management of the event.