



# PANIMALAR ENGINEERING COLLEGE

An Autonomous Institution

## [JAISAKTHI EDUCATIONAL TRUST]

Approved by AICTE | Affiliated to Anna University | Recognized by UGC

All Eligible UG Programs are Accredited by NBA

Bangalore Trunk Road, Varadharajapuram, Poonamallee, Chennai- 600 123

### INDIA'S WOMEN CENTRIC NATIONAL LEVEL 24 – HOUR HACKATHON

### TECHDIVATHON – 2.0

She blooms. She leads. She conquers



Domain: AR/VR

Problem Statements:

S.No	Title	Problem Statement	Description
1	VR Solar Technician Simulator	Learning solar installation is costly and risky.	Build an immersive VR training simulator for solar plant technicians to gain installation, safety, and troubleshooting skills.
2	Wireless AR/VR Multi-User Experience	Existing wireless can't support seamless shared AR/VR scenarios.	Propose a platform that enables ultra-low-latency AR/VR collaboration over Wi-Fi 7 or 5G, supporting dozens of users with synchronized content.
3	AR Navigation Assistant for Smart Buildings Using 5G	Finding rooms or services in large buildings remains confusing.	Develop a 5G-powered AR assistant that overlays live directions, services, and safety info on users' mobile devices for indoor navigation.
4	Virtual Reality (VR) Farming Training Simulator	Farmers lack immersive training for new agri-technologies.	A VR-based simulator provides realistic agricultural training on modern farming techniques safely.
5	Smart Tactical Helmet with Encrypted AR Communication	Soldiers need integrated visual data and secure communication during missions.	Embeds AR display, GPS, and end-to-end encrypted voice/video systems in a helmet for hands-free situational awareness.
6	AR-Enhanced Disaster Evacuation Navigation	Emergency evacuations suffer from panic and poor visibility in smoke-filled environments.	Develop AR glasses that overlay real-time escape routes, hazard warnings, and survivor locations using thermal imaging and crowd-sourced data for safe evacuation.
7	VR Therapeutic Pain Management for Chronic Patients	Pain medications have side effects and limited efficacy for chronic pain sufferers.	Create immersive VR environments that use biofeedback to guide patients through personalized pain distraction and neuroplasticity training sessions.
8	AR Remote Expert Collaboration for Field Repairs	Technicians struggle with complex repairs without expert guidance in remote locations.	Build AR headsets enabling real-time holographic overlays from remote experts, with gesture-based annotation and part identification for on-site repairs.

9	VR Cultural Heritage Preservation Simulator	Endangered cultural sites face destruction from war and climate change.	Design VR reconstructions allowing global access to virtually walk through ancient sites with interactive historical narratives and artifact exploration.
10	AR Adaptive Learning for Dyslexic Students	Traditional reading methods fail dyslexic learners due to processing difficulties.	Develop AR glasses that transform text into dynamic 3D animations, phoneme visualizations, and multisensory reading aids customized to individual learning patterns.
11	VR Microsurgery Precision Training Platform	Surgeons lack realistic practice for delicate microsurgery without risking patients.	Create haptic VR simulators replicating tissue resistance, blood flow dynamics, and instrument feedback for sub-millimeter precision training.
12	AR Urban Planning Citizen Engagement Tool	Citizens feel excluded from city planning decisions lacking visualization.	Build AR mobile apps letting residents visualize proposed buildings, traffic changes, and green spaces overlaid on their actual neighborhoods for feedback.
13	VR PTSD Exposure Therapy with Physiological Gating	Current VR therapy overwhelms PTSD patients with uncontrolled exposure pacing.	Design adaptive VR therapy that monitors heart rate and skin conductance to gradually expose patients to triggers at their physiological comfort threshold.
14	AR Real-Time Language Immersion Translator	Language barriers persist during live conversations despite translation apps.	Create AR glasses providing real-time subtitle overlays, gesture translation, and cultural context hints during multilingual conversations.
15	VR Zero-Gravity Spacewalk Training	Astronauts lack Earth-based zero-gravity training realism before missions.	Develop full-body VR rigs simulating microgravity physics, suit constraints, and orbital mechanics for authentic spacewalk preparation.
16	AR Furniture-Free Interior Design Visualizer	Customers can't visualize furniture without physical showrooms or returns.	Build AR apps scanning rooms and projecting lifelike 3D furniture models with lighting, scale, and material interaction previews.
17	VR Collaborative Orchestra Conductor Simulator	Aspiring conductors lack orchestra access for practice and feedback.	Create VR environments with virtual orchestras responding to baton gestures, tempo variations, and dynamics in real-time.
18	AR Wildlife Conservation Field Guide	Field researchers struggle identifying species and behaviors in real-time.	Develop AR binoculars overlaying species identification, migration patterns, habitat data, and threat assessments during wildlife observation.
19	VR Architectural Heritage Restoration Simulator	Architects can't practice restoration without destroying original structures.	Design VR platforms letting architects experiment with material aging, structural reinforcement, and aesthetic restoration on digital twins of historic buildings.
20	AR Interactive Museum Artifact Storyteller	Museum visitors miss contextual stories behind artifacts due to static labels.	Create AR apps animating artifact histories, 3D reconstructions of their original use, and interactive cultural context overlays when viewed through smartphones

**Reviewer’s Digital Signature**

**Reviewer’s Name:**  
**Position:**  
**Organization:**  
**Date:**

**Digital Signature:**