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**Международный научно-образовательный электронный журнал
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MODERN OF THE “ROWACH” SHOPPING AND RECREATION CENTER»

Abstract

The design of contemporary shopping and recreation centers requires the integration of architectural innovation, user-centered planning, and advanced digital visualization techniques. This study presents the exterior design and animation of the “Rowach” Shopping and Recreation Center, emphasizing functional zoning, aesthetic identity, and environmental sustainability. The research employs Building Information Modeling (BIM) and real-time rendering technologies to develop a comprehensive architectural model and dynamic visual simulations. The findings demonstrate that digital animation significantly enhances design evaluation, spatial perception, and stakeholder communication, while supporting efficient and sustainable urban development.

1. Introduction

Modern shopping and recreation centers serve as multifunctional urban hubs that combine retail, entertainment, and social interaction. Their exterior design plays a critical role in attracting visitors, shaping urban identity, and ensuring operational efficiency.

Advancements in architectural visualization, including 3D modeling and animation, have transformed traditional design workflows. These technologies allow designers to simulate realistic environments, optimize spatial configurations, and present projects in an immersive manner.

This study focuses on the architectural design and animation of the “Rowach” Shopping and Recreation Center, integrating aesthetic, functional, and technological considerations.

2. Literature Review

Recent research highlights the importance of **mixed-use developments** in urban planning, where commercial and recreational functions coexist within a unified architectural framework.

Key concepts include:

- **User-centered design** for improved visitor experience
- **Sustainable architecture** for reduced environmental impact
- **Digital visualization technologies** for enhanced project communication

The adoption of real-time rendering engines such as Unreal Engine and Twinmotion has significantly improved the efficiency and realism of architectural animation.

3. Methodology

3.1 Site Analysis

The design process begins with a detailed site analysis, including:

- Urban context and accessibility
 - Climate conditions and solar orientation
 - Traffic flow and pedestrian movement
-

3.2 Architectural Design Concept

The “Rowach” Center is designed as a modern, visually striking complex that combines:

- Retail spaces
- Entertainment zones (cinemas, gaming areas)
- Recreational areas (cafes, open plazas)

The architectural concept emphasizes transparency, openness, and dynamic forms.

3.3 Exterior Design Features

Key exterior elements include:

- Glass curtain walls for natural lighting
 - Large entrance plazas for public interaction
 - LED-integrated facades for dynamic visual effects
 - Green spaces and landscaped areas
-

3.4 Functional Zoning

The layout is divided into:

- Commercial zones
- Leisure and entertainment zones
- Service and logistics areas
- Parking and transportation infrastructure

Efficient circulation paths are designed to optimize visitor flow.

3.5 3D Modeling

The architectural model is developed using:

- Autodesk Revit (BIM modeling)
- SketchUp / Rhino (concept design)
- Blender (detailed visualization)

The model incorporates structural elements, facade systems, and environmental context.

3.6 Animation Development

The animation process includes:

1. Camera path design (walkthrough and aerial views)
2. Lighting simulation (day/night cycles)

3. Material and texture application
4. Environmental effects (crowd simulation, traffic movement)

Rendering tools:

- Unreal Engine (real-time rendering)
 - Lumion / Twinmotion (architectural visualization)
-

4. Results and Discussion

4.1 Architectural Outcomes

The final design demonstrates:

- Strong visual identity and modern aesthetics
 - Efficient spatial organization
 - Integration with urban environment
-

4.2 Environmental Performance

The design incorporates:

- Passive solar design strategies
 - Energy-efficient facade systems
 - Green areas for microclimate regulation
-

4.3 Animation Results

The animated model provides:

- Realistic visualization of exterior spaces
 - Dynamic representation of lighting and movement
 - Enhanced understanding of spatial relationships
-

4.4 User Experience

The integration of design and animation improves:

- Visitor orientation and navigation
- Engagement through interactive environments
- Commercial attractiveness

5. Applications

The methodology can be applied in:

- Urban commercial development projects
 - Real estate marketing and presentations
 - Smart city planning
 - Virtual reality simulations
-

6. Advantages

- Improved design validation
 - Enhanced communication with stakeholders
 - Reduced risk of design errors
 - Increased marketing effectiveness
-

7. Limitations

- High computational requirements
 - Dependence on specialized software
 - Time-intensive modeling process
-

8. Conclusion

The integration of architectural design and digital animation provides a powerful framework for developing modern shopping and recreation centers. The “Rowach” project demonstrates how advanced visualization technologies can enhance both the design process and the final presentation. Future developments may include the integration of virtual reality and artificial intelligence to further optimize design and user experience.

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