

CGR Micro Project Topics

Checkout the list of the latest CGR Micro Project Topics:

1. Interactive Games & Entertainment

1. Virtual Pet Simulator with Mood Recognition and Dynamic Behavior System
2. Hand-Controlled Music Visualizer Using Computer Vision and LED Display
3. Real-Time Shadow Puppetry Game with Gesture Recognition Technology
4. Interactive Story Book Creator with 3D Pop-Up Animation Effects
5. Digital Art Canvas with Paint Mixing and Texture Simulation
6. Motion-Based Dance Teacher with Real-Time Feedback and Scoring
7. Virtual Drum Kit Using Computer Vision and Sound Synthesis
8. Gesture-Controlled Spaceship Navigator Through Asteroid Field Environment
9. Digital Puppet Theater with Voice-Activated Character Movements
10. AR-Based Memory Card Game with Custom Image Recognition
11. Interactive Color Theory Teacher Using Mixed Reality Technology
12. Virtual Carnival Games with Physics-Based Ball Throwing Mechanics
13. Digital Origami Simulator with Folding Animation and Instructions
14. Musical Piano Tiles Game with Hand Movement Detection
15. Virtual Zoo Tour Guide with Animal Animation Controls
16. Interactive Constellation Map with Star Navigation System
17. Digital Magic Tricks Simulator with Hand Gesture Controls
18. Virtual Sports Coach with Motion Analysis Feedback
19. Interactive Chemistry Lab with 3D Molecular Visualization
20. Digital Board Game Creator with a Custom Rule Engine

2. Smart Home & Automation

21. Smart Plant Watering System with Moisture Level Visualization
22. Automated Pet Feeder with Schedule Management and Portion Control
23. Voice-Controlled Room Lighting with Custom Scene Creation Interface
24. Smart Mirror with Weather and Calendar Information Display
25. Automated Window Blind Controller with Light Level Detection
26. Digital Door Lock with Face Recognition Security System
27. Smart Kitchen Inventory Tracker with Barcode Scanning Feature
28. Home Energy Usage Monitor with Real-Time Consumption Visualization
29. Automated Temperature Control System with Zone Management Interface
30. Smart Garbage Sorting System with Object Recognition Technology
31. Digital Grocery List Manager with Expiry Date Tracking
32. Automated Mail Sorting System with Package Detection Features
33. Smart Closet Organizer with Outfit Suggestion Algorithm
34. Home Security Camera with Motion Pattern Recognition
35. Automated Garden Management System with Plant Health Monitoring
36. Smart Study Desk with Posture Detection Alerts
37. Digital Bookshelf Organizer with Book Recommendation System

38. Automated Pet Exercise Machine with Activity Tracking
39. Smart Medicine Cabinet with Medication Schedule Reminders
40. Home Noise Level Monitor with Sound Source Detection

3. Educational Tools

41. Interactive Math Problem Solver with Step-by-Step Visualization
42. Digital Science Experiment Simulator with Variable Control Interface
43. Language Learning Game with Speech Recognition Technology
44. Historical Timeline Explorer with Interactive 3D Elements
45. Geography Quiz Game with Interactive World Map
46. Digital Art History Teacher with Painting Style Analysis
47. Virtual Physics Lab with Real-Time Force Visualization
48. Interactive Music Theory Teacher with Sound Generation
49. Digital Biology Cell Explorer with 3D Visualization
50. Chemistry Molecule Builder with Atomic Bond Simulation
51. Virtual Archaeological Dig Site with Layer Exploration
52. Interactive Grammar Checker with Writing Style Suggestions
53. Digital Solar System Explorer with Planet Orbit Simulation
54. Math Graph Plotter with Interactive Function Manipulation
55. Virtual Weather Station with Climate Pattern Analysis
56. Digital Circuit Builder with Current Flow Visualization
57. Interactive Geometry Teacher with Shape Transformation Tools
58. Virtual Microscope with Cell Structure Identification
59. Digital Rock Collection with Mineral Property Analysis
60. Interactive Periodic Table with Element Reaction Simulation

4. Environmental & Sustainability

61. Recycling Sorter Robot with Material Type Detection
62. Solar Panel Efficiency Calculator with Shadow Impact Analysis
63. Water Quality Monitor with Pollution Level Visualization
64. Air Pollution Detector with Particle Size Analysis Display
65. Energy Usage Optimizer with Smart Device Control
66. Composting Monitor with Decomposition Rate Analysis System
67. Renewable Energy Simulator with Power Generation Visualization
68. Wildlife Activity Tracker with Motion Detection Camera
69. Tree Growth Monitor with Health Assessment Features
70. Ocean Cleanup Robot with Plastic Detection System
71. Carbon Footprint Calculator with Lifestyle Impact Analysis
72. Smart Water Conservation System with Usage Pattern Detection
73. Sustainable Transportation Planner with Route Optimization Algorithm
74. Wind Power Generator with Efficiency Monitoring Interface
75. Environmental Sound Monitor with Noise Pollution Analysis
76. Eco-Friendly Home Designer with Energy Efficiency Tools
77. Biodiversity Scanner with Species Identification Technology
78. Waste Reduction Tracker with Recycling Goal System
79. Green Energy Calculator with Cost-Saving Analysis

80. Climate Change Visualization Tool with Data Mapping

5. Health & Fitness

81. Posture Correction System with Real-Time Feedback Display
82. Exercise Form Analyzer with Movement Pattern Recognition
83. Virtual Personal Trainer with Custom Workout Generator
84. Heart Rate Monitor with Activity Level Analysis
85. Sleep Pattern Analyzer with Quality Assessment Tools
86. Digital Nutrition Guide with Meal Planning Assistant
87. Stress Level Monitor with Relaxation Exercise Suggestions
88. Virtual Yoga Instructor with Pose Correction Technology
89. Physical Therapy Assistant with Progress Tracking System
90. Digital Weight Training Coach with Form-Checking
91. Running Gait Analyzer with Speed Optimization Tips
92. Balance Training Game with Stability Assessment Tools
93. Breathing Exercise Guide with Air Flow Visualization
94. Virtual Boxing Trainer with Punch Speed Analysis
95. Flexibility Assessment Tool with Stretch Guide System
96. Digital Physical Assessment with Body Measurement Scanner
97. Sports Performance Analyzer with Technique Improvement Tips
98. Rehabilitation Exercise Assistant with Progress Tracking
99. Digital Meditation Guide with Focus Level Monitor
100. Fitness Goal Tracker with Achievement Visualization System

6. Accessibility & Assistance

101. Sign Language Translator with Gesture Recognition System
102. Voice-Controlled Navigation Assistant for Visual Impairment
103. Text-to-Speech Reader with Natural Voice Synthesis
104. Color Blindness Assistant with Enhanced Vision Display
105. Mobility Aid with Obstacle Detection and Warning
106. Digital Memory Assistant with Task Reminder System
107. Speech Therapy Guide with Pronunciation Feedback Tools
108. Hearing Aid Controller with Sound Enhancement Features
109. Wheelchair Navigation System with Path Planning Assistant
110. Braille Learning Tool with Interactive Touch Display
111. Cognitive Exercise Game with Memory Enhancement Activities
112. Adaptive Computer Interface with Custom Control Options
113. Emergency Alert System with Location Tracking Features
114. Digital Communication Board with Symbol Recognition Technology
115. Motor Skill Training Game with Progress Tracking
116. Visual Aid System with Object Recognition Features
117. Mood Recognition Assistant with Emotional Support Tools
118. Daily Task Organizer with Step-by-Step Instructions
119. Social Interaction Helper with Communication Cue System
120. Accessibility Map Creator with Barrier Documentation Tools

7. Transportation & Navigation

121. Smart Parking Assistant with Space Detection System
122. Traffic Flow Analyzer with Congestion Prediction Model
123. Bicycle Route Planner with Safety Feature Analysis
124. Public Transport Tracker with Real-Time Arrival Prediction
125. Vehicle Maintenance Monitor with Diagnostic Alert System
126. Road Safety Scanner with Hazard Detection Technology
127. Fleet Management System with Route Optimization Tools
128. Electric Vehicle Range Calculator with Charging Station
129. Pedestrian Navigation System with Safe Route Planning
130. Driver Behavior Analyzer with Safety Score Generator
131. Smart Traffic Light Controller with Flow Optimization
132. Vehicle Accident Prevention System with Collision Detection
133. Autonomous Delivery Robot with Path Planning Algorithm
134. Emergency Vehicle Router with Traffic Priority System
135. Ride-Sharing Optimizer with Match-Making Algorithm
136. Smart School Bus Tracker with Route Management
137. Railway Crossing Monitor with Safety Alert System
138. Airport Ground Traffic Controller with Path Planning
139. Marine Navigation Assistant with Weather Integration
140. Drone Flight Planner with Obstacle Avoidance System

8. Agriculture & Food

141. Crop Health Monitor with Disease Detection System
142. Smart Irrigation Controller with Weather Data Integration
143. Soil Quality Analyzer with Nutrient Level Display
144. Harvest Time Predictor with Growth Stage Analysis
145. Pest Detection System with Treatment Recommendation Tools
146. Food Freshness Scanner with Expiry Date Prediction
147. Greenhouse Climate Controller with Plant Growth Optimization
148. Farm Equipment Monitor with Maintenance Schedule System
149. Livestock Health Tracker with Behavior Analysis Tools
150. Crop Yield Predictor with Weather Impact Assessment
151. Smart Composting System with Temperature Control Features
152. Vertical Farming Controller with Light Optimization System
153. Bee Activity Monitor with Pollination Pattern Analysis
154. Food Storage Optimizer with Temperature Control System
155. Agricultural Drone Controller with Crop Survey Tools
156. Aquaponics System Monitor with Water Quality Control
157. Seed Planting Robot with Spacing Optimization System
158. Fruit Ripeness Detector with Harvesting Time Calculator
159. Farm Resource Manager with Usage Optimization Tools
160. Weather Impact Analyzer with Crop Protection System

9. Art & Design

161. Digital Color Mixer with Custom Palette Creator
162. 3D Character Animator with Motion Capture System
163. Virtual Sculpture Creator with Clay Modeling Tools
164. Digital Fashion Designer with Fabric Simulation Features
165. Architectural Visualization Tool with Lighting Effects System
166. Logo Design Assistant with Style Generation Algorithm
167. Digital Paint Mixer with Texture Simulation Tools
168. Animation Storyboard Creator with Scene Planning System
169. Virtual Interior Designer with Room Layout Tools
170. Digital Pattern Generator with Symmetry Control Features
171. Art Style Transfer Tool with Custom Filter
172. Virtual Photography Assistant with Composition Guidelines
173. Digital Textile Designer with Pattern Repeat Calculator
174. 3D Furniture Designer with Material Visualization Tools
175. Virtual Makeup Artist with Face Recognition System
176. Digital Jewelry Designer with Gem Rendering Features
177. Virtual Landscape Designer with Plant Visualization Tools
178. Digital Comic Creator with Panel Layout System
179. Virtual Set Designer with Lighting Simulation Tools
180. Digital Typography Assistant with Font Creation Features

CGR Micro Project Topics with Source Code

Simple Paint Application

- **Programming:** C++ with OpenGL
- **Features:** Draw shapes, pick colors, save and open drawings
- **Files:** `main.cpp`, `graphics.h`, `mouse.h`

2. Digital Clock with Analog Display

- **Programming:** C with `graphics.h`
- **Features:** Shows hours, minutes, seconds, and date
- **Files:** `clock.c`, `time.h`

3. Basic Shape Calculator

- **Programming:** C
- **Features:** Finds area and perimeter of shapes, shows shapes
- **Files:** `shapes.c`, `math.h`

4. Moving Car Animation

- **Programming:** C with `graphics.h`
- **Features:** Smooth car animation with a background
- **Files:** `car.c`, `animation.h`

5. Simple Snake Game

- **Programming:** C++ with SFML
- **Features:** Tracks score, detects when the snake hits walls
- **Files:** `snake.cpp`, `game.h`

6. Basic Calculator

- **Programming:** C with GUI
- **Features:** Basic math operations, memory features
- **Files:** `calc.c`, `operations.h`

7. Bouncing Ball Simulation

- **Programming:** C with `graphics.h`
- **Features:** Simulates ball physics and collision
- **Files:** `ball.c`, `physics.h`

8. Line Drawing Algorithm

- **Programming:** C
- **Features:** Uses Bresenham's line drawing method
- **Files:** `line.c`, `pixel.h`

9. Simple Text Editor

- **Programming:** C++
- **Features:** Edit text, open and save files
- **Files:** `editor.cpp`, `file.h`

10. Pattern Drawing Program

- **Programming:** C with `graphics.h`
- **Features:** Draws different patterns, choose colors
- **Files:** `pattern.c`, `draw.h`

CGR Micro Project PDF Documentation Format

11. Traffic Light Simulation

- **PDF:** Algorithm, flowchart, code
- **Docs:** Install guide, user manual
- **Extras:** Sample results

12. Digital Thermometer

- **PDF:** Circuit, code details
- **Docs:** Formulas for temperature conversion
- **Extras:** Testing Guide

13. Basic Music Player

- **PDF:** System setup, UI design
- **Docs:** Supported file types
- **Extras:** UI screenshots

14. Simple File Explorer

- **PDF:** Class diagrams, feature flow
- **Docs:** File operations
- **Extras:** Error handling tips

15. Basic Image Viewer

- **PDF:** Image processing techniques
- **Docs:** Supported formats, feature details
- **Extras:** Performance tips

CGR Micro Project Topics for 3rd Semester K Scheme

16. 2D Shape Transformer

- **Features:** Rotate, scale, move shapes
- **Algorithms:** Matrix transformations
- **Interface:** Interactive UI

17. Basic Animation Creator

- **Features:** Frame-by-frame animation, timeline
- **Extras:** Export options

18. Simple Graphics Editor

- **Features:** Drawing tools, layer management
- **Interface:** Color palette

19. Fractal Generator

- **Features:** Different fractal types, zoom in/out
- **Extras:** Custom colors

20. Basic 3D Viewer

- **Features:** Render 3D shapes, rotate view
- **Display:** Wireframe view

Simple CGR Micro Project Topics in C

21. DDA Line Drawing

```
// Example code
```

```

void DDALine(int x1, int y1, int x2, int y2) {
    float dx = x2 - x1;
    float dy = y2 - y1;
    float steps = max(abs(dx), abs(dy));
    float xInc = dx/steps;
    float yInc = dy/steps;
}

```

22. Circle Drawing

```

void drawCircle(int xc, int yc, int r) {
    int x = 0, y = r;
    int d = 3 - 2 * r;
}

```

23. Basic Transformation

```

void translate(int *x, int *y, int tx, int ty) {
    *x = *x + tx;
    *y = *y + ty;
}

```

24. Flood Fill

```

void floodFill(int x, int y, int oldColor, int newColor) {
    if(getpixel(x, y) == oldColor) {
        putpixel(x, y, newColor);
    }
}

```

25. Character Animation

```

void animateChar(int x, int y) {
    for(int frame = 0; frame < FRAMES; frame++) {
        cleardevice();
    }
}

```

CGR Micro Project PPT Topics

26. 3D Solar System

- **Presentation:** Interactive planets, animations

- **Extras:** Planet facts

27. Weather Visualization

- **Presentation:** Animated icons, temp graphs
- **Extras:** Forecast data

28. Network Topology Viewer

- **Presentation:** Nodes, connection animations
- **Extras:** Status indicators

29. Data Structure Visualizer

- **Presentation:** Algorithm steps, visuals
- **Extras:** Execution breakdown

30. Circuit Simulator

- **Presentation:** Component and current flow animations
- **Extras:** Logic gates