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A2IOTS: AR-ENABLED AIOT SOLUTIONS FOR VISION-TO-REALITY TRANSFORMATION IN SMART EDUCATION

Lernen . Lehren . Forschen . *Wir gestalten Bildungszukunft!*

May 19-23, 2025 Barcelona, Spain

University College of Teacher Education Styria

Presentation Overview

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A2IoTS- Introduction

Rapid Technological Advancements Outpace Traditional Curricula.

Need for Integrating AI, IoT, and AR into education.

Aim: Bridge Theoretical Knowledge with Practical Application

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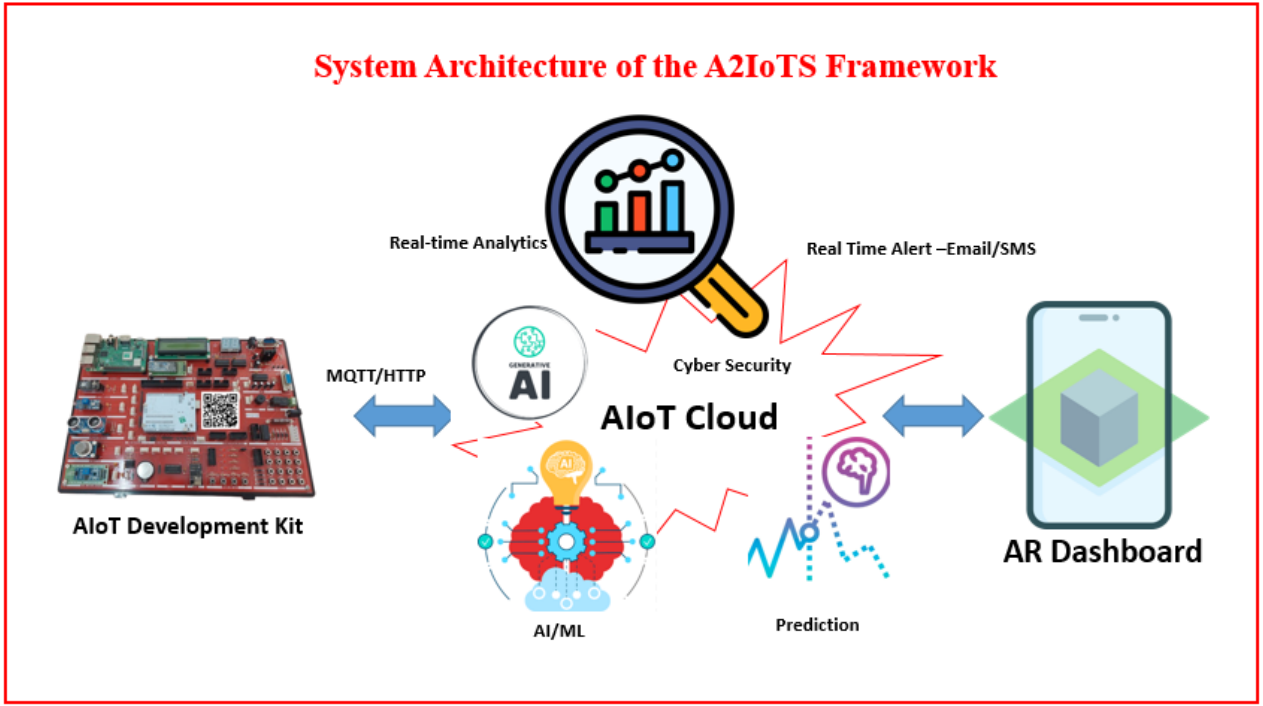
System Architecture



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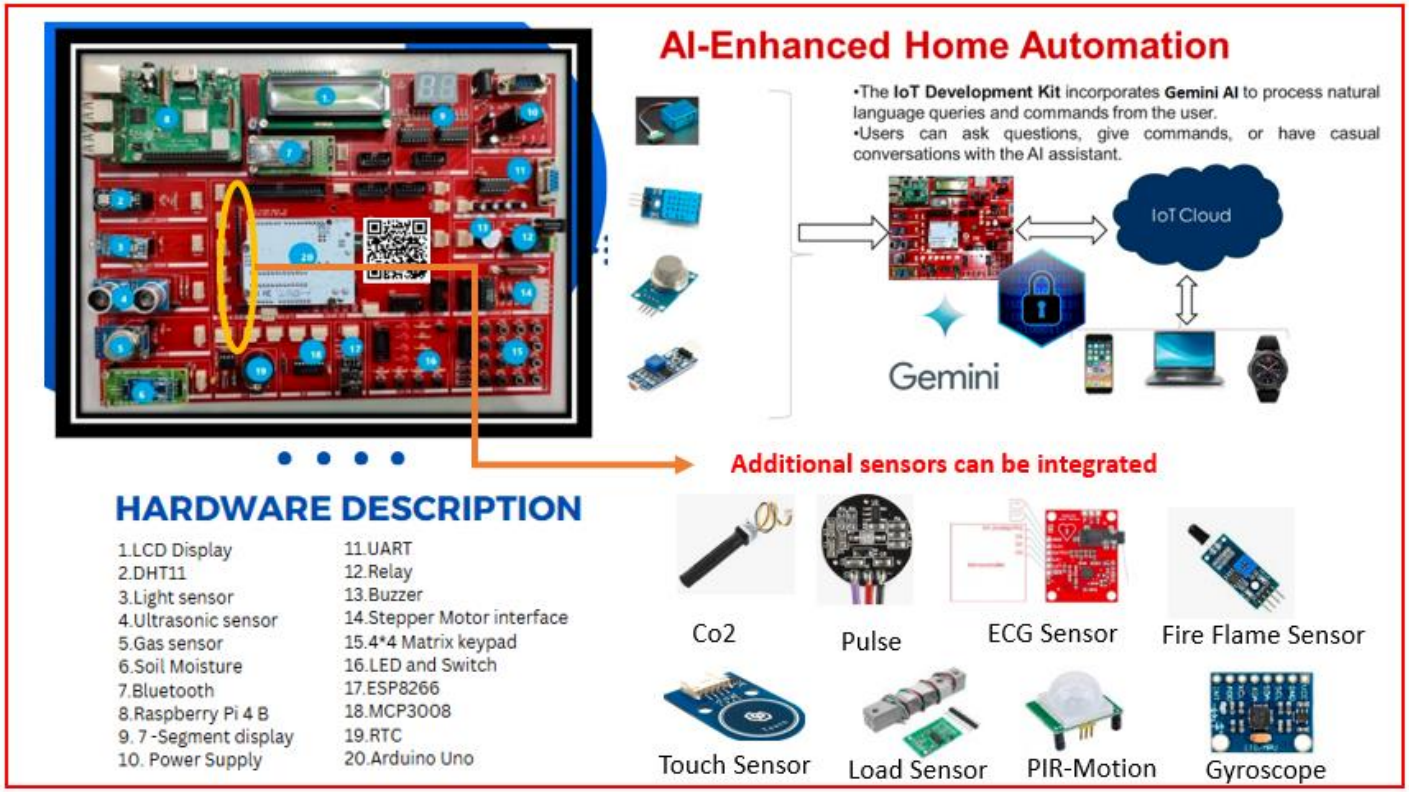
AIoT Development Kit: Hardware Description



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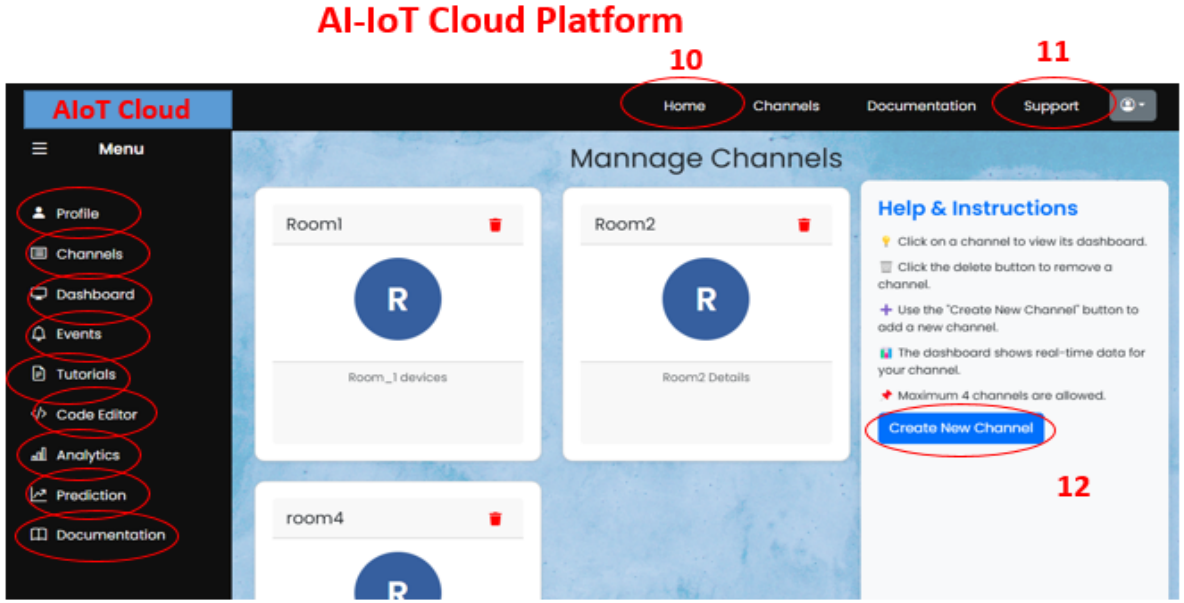
AIoT Cloud Platform Overview

1. Profile:
2. Channels:
3. Dashboard:
4. Events:
5. Tutorials:
6. Code Editor:
7. Analytics:
8. Prediction:
9. Documentation:
10. Home:
11. Support:
12. Create New Channel



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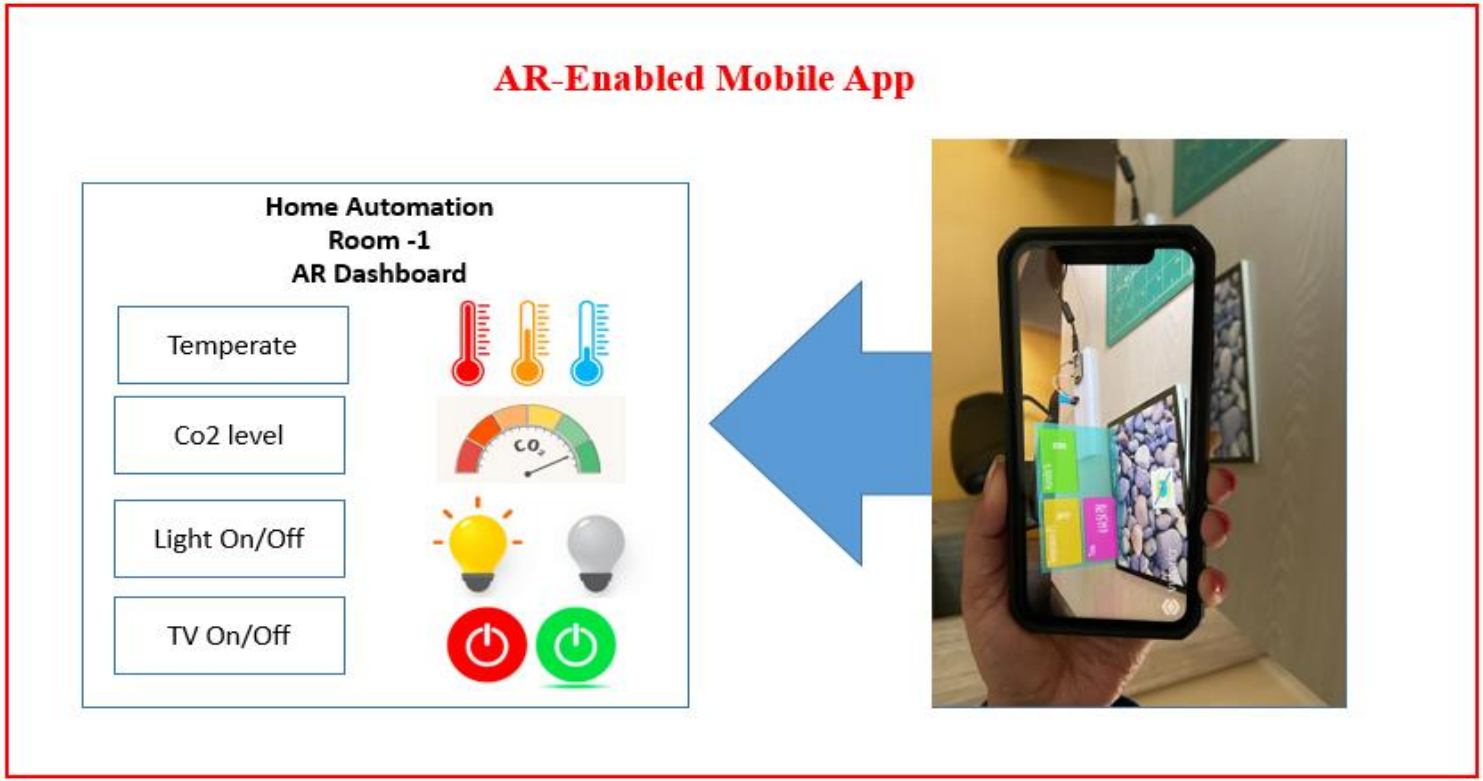
AR-Enabled Smart Environment Control Interface



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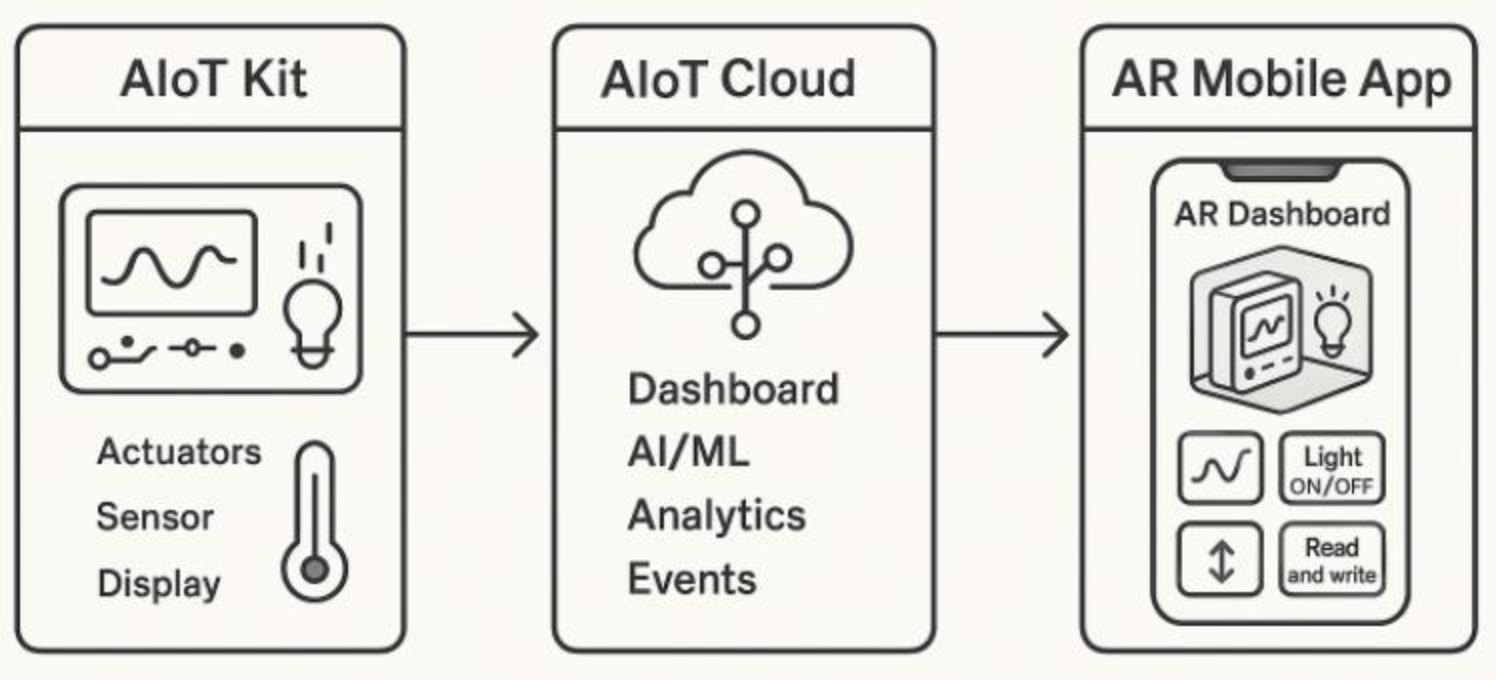
Methodology: Block Diagram of the A2IoTS Integrated System



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Demonstration of the A2IoTS Framework in a Classroom Environment

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Results & Key Findings

Concept retention improved by 32%.

78% of students reported increased interest and motivation.

Educators observed a 40% reduction in time explaining foundational IoT principles.

Adaptable across modules: smart home automation, smart agriculture, environmental monitoring, energy management and others.

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Conclusion & Future Outlook

- A2IoTS bridges theoretical instruction and practical application.
- Promotes creative thinking, real-time problem-solving, and future-ready competencies.
- Scalable and adaptable for next-generation learning environments.
- Integration of game-based AR quizzes for non-STEM subjects.
- Development of generative AR models for immersive simulations.
- Incorporation of AI-based conversational agents for personalized learning.
- Enhanced interoperability with platforms like Moodle and Google Classroom.

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