MindCheq - To Reconnect Self :Empowering Young Minds through AI-Driven Cognitive Retraining and Predictive Psychiatry with AR/VR Approach

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ABSTRACT

MindCheq aspires to advance child mental health research by synergizing EEG-based cognitive retraining with AI-driven predictive psychiatry. Precision problem classifications enable bespoke interventions, seamlessly integrating AI methodologies and AR/VR approaches for a comprehensive therapeutic framework

OBJECTIVE

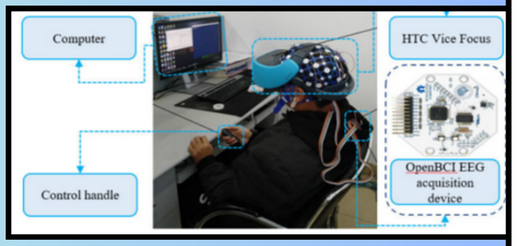
MindCheq aims to advance child mental health research by developing EEG-based cognitive retraining methods. The objective is to enhance logical reasoning, memory, and behavioral skills, providing personalized interventions for improved well-being and quality of life.

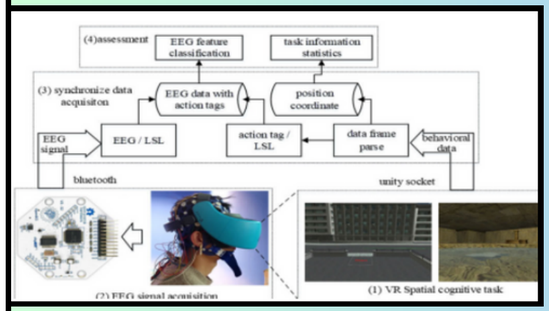
BACKGROUND

MindCheq addresses the intersection of cognitive disorders and EEG analysis, focusing on ADHD, ASD, Dementia, Epilepsy, Encephalitis, and Speech Disorders. Leveraging OpenBCI EEG devices and HTC Vive Focus HMD, it combines AI-driven predictive psychiatry with AR/VR approaches to create a comprehensive therapeutic framework for child mental health.

METHODOLOGY

The methodology involves exploring EEG waveforms associated with various cognitive disorders. Power spectrum density analysis and Fourier transform techniques unravel EEG signal details. The system integrates spatial cognitive training, VR technology (Virtual Morris Water Maze, Virtual City Walking Task), and AI algorithms for precise problem classifications.



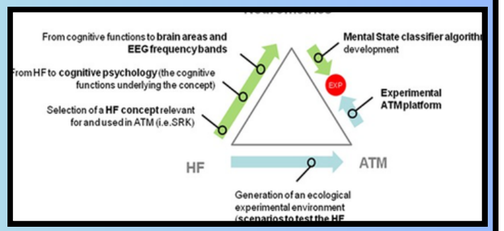


MODELS&TOOLS

The development includes models for holistic strategy implementation, encompassing logical reasoning, memory, and behavioral skills. AI, AR, and VR technologies facilitate personalized interventions and continuous support. The hardware utilizes OpenBCI EEG devices, and the software components involve Unity 3D, MATLAB, and VSCODE

ANALYSIS

MindCheq employs EEG analysis techniques to classify cognitive disorders. AI-driven predictive psychiatry provides continuous insights into academic performance, extracurricular activities, sleep-wake cycles, and social media interactions. Transformative reshaping of mental health care is achieved by integrating data-driven insights.



NEUROMETRICS

ACKNOWLEDGE

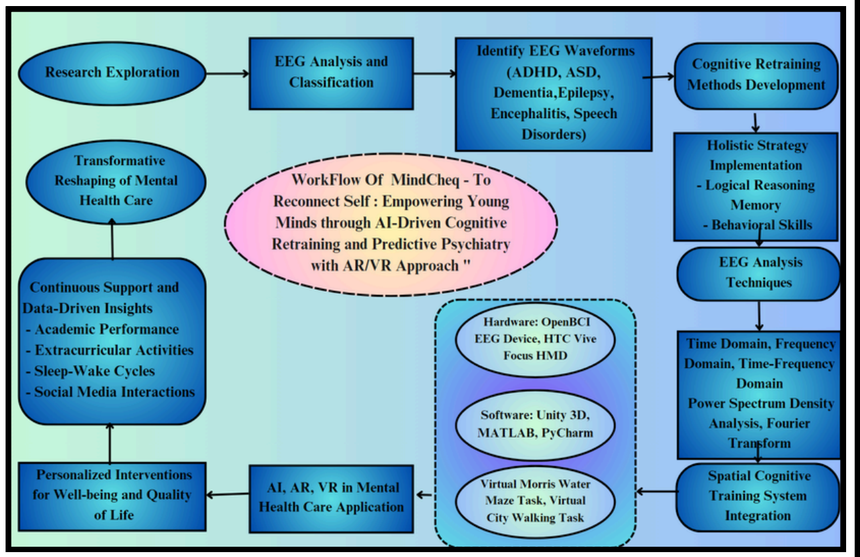
-1.Grateful for the invaluable contributions from professionals in child mental health, medicine, education, and technology.

2.Sincere thanks to everyone instrumental in shaping MindCheq's innovative approach to enhance children's well-being with cognitive disorders.

CONCLUSION

MindCheq introduces a new era of comprehensive and personalized mental health care, redefining how cognitive disorders are approached. The combination of EEG analysis, AI-driven nterventions, and AR/VR technologies presents a transformative model for Child mental health support.

WORKFLOW



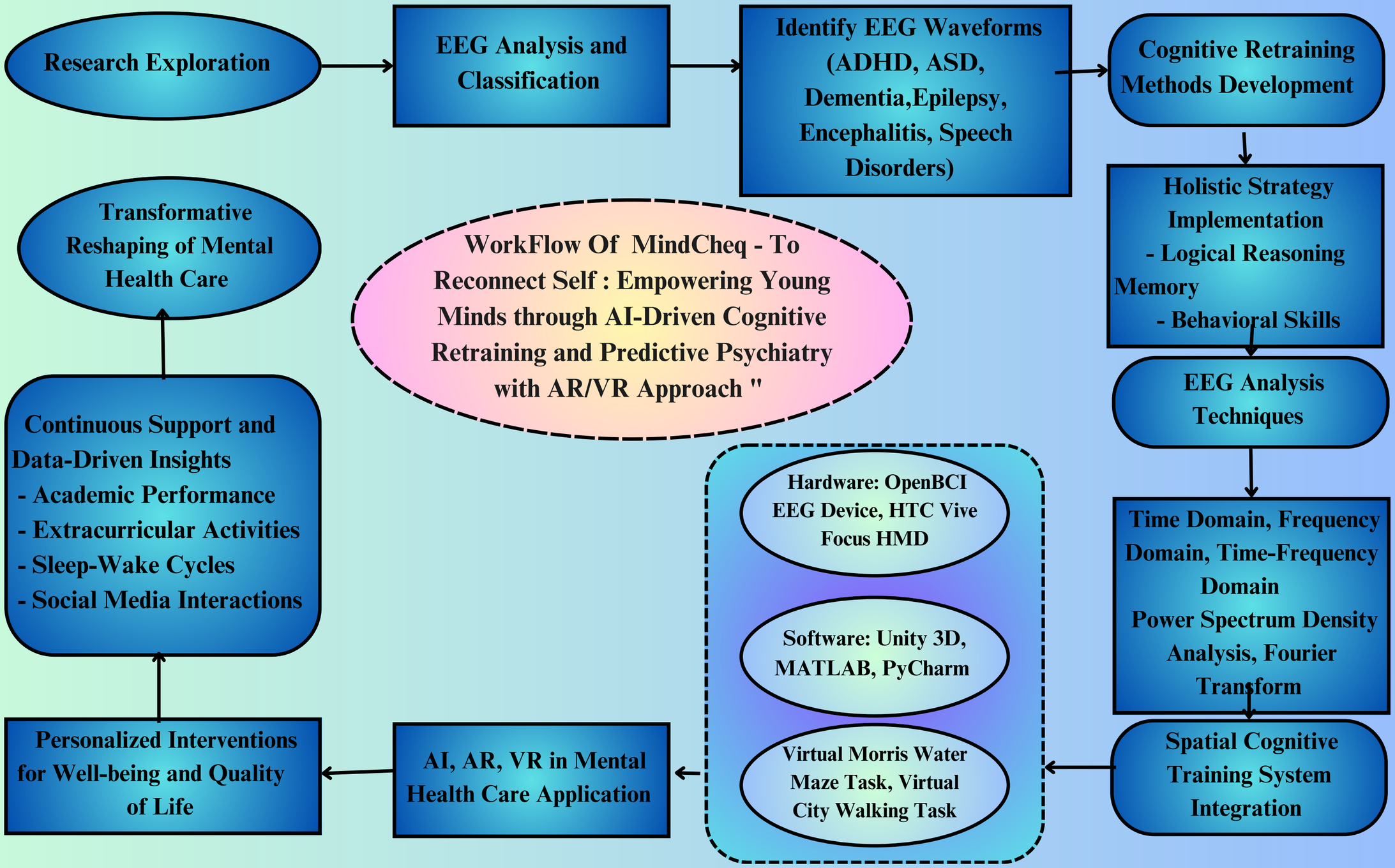
RECOMMENDATIONS

Implement MindCheq in child mental health research organizations.

-Foster collaboration with medical professionals, educators, and technology experts.
- Prioritize regular updates to align with evolving research and technology.

IMPLICATIONS

- Enhance accessibility, engagement, and treatment effectiveness for children with cognitive disorders.
- Pioneer the integration of advanced technologies into mental health care practices.
- Influence the broader field of personalized medicine.


Research Exploration
EEG Analysis and Classification
Identify EEG Waveforms (ADHD, ASD, Dementia,Epilepsy, Encephalitis, Speech Disorders)
Cognitive Retraining Methods Development
Holistic Strategy Implementation
- Logical Reasoning
Memory
- Behavioral Skills
EEG Analysis Techniques
Time Domain, Frequency Domain, Time-Frequency Domain
Power Spectrum Density Analysis, Fourier Transform
Spatial Cognitive Training System Integration
Hardware: OpenBCI EEG Device, HTC Vive Focus HMD
Software: Unity 3D, MATLAB, PyCharm
Virtual Morris Water Maze Task, Virtual City Walking Task
AI, AR, VR in Mental Health Care Application
Personalized Interventions for Well-being and Quality of Life
Continuous Support and Data-Driven Insights
- Academic Performance
- Extracurricular Activities
- Sleep-Wake Cycles
- Social Media Interactions
Transformative Reshaping of Mental Health Care
WorkFlow Of MindCheq - To Reconnect Self : Empowering Young Minds through AI-Driven Cognitive Retraining and Predictive Psychiatry with AR/VR Approach "