MERN Developer Task: Real-Time Chat Application with Camera, Microphone, and AI Integration

Objective:
Develop a real-time chat application with camera and microphone integration, leveraging OpenAI's API, Socket.io, and MongoDB. The app will feature text-to-speech and speech-to-text capabilities.

Project Setup:
Initialize a new MERN (MongoDB, Express.js, React.js, Node.js) project.
Install required npm packages: Express, Socket.io, Mongodb, Openai, and additional libraries for text-to-speech and speech-to-text services.
Set up a Figma-based UI design for the application, including camera and microphone controls.

Backend Development:
Set up an Express server.
Configure Socket.io for real-time communication.
Integrate MongoDB for chat history storage.
Create endpoints for OpenAI API communication.
Implement text-to-speech and speech-to-text services.

Frontend Development:
Develop a React-based frontend according to the Figma design.
Implement camera and microphone functionality with enable/disable options.
Ensure real-time chat display and interaction.
Integrate Socket.io client for seamless server communication.

Integration:
Enable real-time messaging with OpenAI's API.
Implement MongoDB for storing and retrieving chat history.
Ensure smooth operation of camera, microphone, and conversion services.

Testing and Debugging:
Conduct comprehensive testing across all features.
Debug any issues for smooth functionality.

Deployment:
Choose a suitable cloud hosting platform for deployment (e.g., AWS, Heroku, DigitalOcean).
Deploy the application and test its live functionality.
Ensure privacy and security best practices in deployment.

Documentation and Cleanup:
Document the application's architecture, setup, and user guide.
Clean up the codebase, removing unused code and dependencies.

Verify production configurations.

Future Improvements:
Suggest potential enhancements and additional features.

Deliverables:
A fully functional chat application, deployed and accessible online.
Comprehensive documentation hosted with the source code.
Source code in a GitHub repository.
A guide detailing the setup and usage of the application.

Submission:
Submit the GitHub repository link and documentation via email to *akshu@ourgoodspace.com* with the *subject* **GoodSpace NSIT SDE MERN TASK**.