**Template for your proposed idea**

**Team Name:**  
FileShareX

**Team Details:**

|  |  |  |  |
| --- | --- | --- | --- |
| S.No | RegisterationNumber | Name | Contribution |
| 1 | 24BCE5048 | Aryan Patel | 100% |

**1. Title:**  
Real-time File Sharing over Local Network using Socket.IO

**2. Area of research & Domain of research:**  
Computer Networks & Real-Time Peer-to-Peer (P2P) Communication

**3. Objective of the proposal:**  
The aim of this proposal is to develop a real-time file sharing system that works over a local network (such as Wi-Fi) using Socket.IO. The system allows a sender to create a unique room ID and share files directly with a receiver connected to the same network. This project demonstrates the practical implementation of networking concepts like sockets, real-time communication, and peer-to-peer data transfer. The core objective is to show how devices on the same network can exchange files securely and efficiently without relying on external servers or the internet.

**4. Background/short description:**  
This project is built using Node.js, Express.js, and Socket.IO. The backend server handles room creation and manages the signaling between sender and receiver. Once the connection is established, files are read as array buffers, broken into chunks, and sent over the network in real time. The receiver reassembles the chunks and downloads the complete file. The user interface is built in HTML, CSS, and JavaScript, and could be enhanced further into a single React app.

**5. Motivation: Why are you doing it?**  
In many situations, users need to share files quickly between devices on the same local network without uploading them to external cloud services. This project is motivated by the need for privacy, speed, and independence from internet connectivity.

**6. Problem Statement: What problem are you trying to solve?**  
To create a secure, local file sharing method that works even without internet access, by leveraging socket-based real-time communication.

**7. Prevailing Techniques for the problem: Is the solution already available?**  
Existing solutions like AirDrop (Apple) and some third-party apps (like SHAREit) exist, but they are platform-dependent or may include ads and privacy concerns. Our solution is cross-platform, simple, and runs purely on a local network using open source technologies.

**8. Expected inputs/outputs/results:**

* Input: File to be shared and receiver’s connection request.
* Output: File transferred successfully and downloaded on the receiver's device.
* Result: Fast, reliable, and secure file transfer over local network without internet.

**9. What is the outcome of your project?**  
A functional prototype demonstrating real-time, peer-to-peer file sharing within the same local network, showcasing the application of computer networking principles.

**10. References:**

* Socket.IO Documentation
* Node.js Official Docs
* Tutorials and blogs on P2P file sharing
* Web technologies: HTML, CSS, JavaScript basics