Final Year Project Proposal

Thank you for submitting your fourth year project proposal.

Regards,
Lucy White.

Final Year Project Coordinator
e: lbwhite@wit.ie

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This form seeks to gather project proposals from fourth year computing students. The deadline for submission of proposals is 16th of September 2025 .

First Name
Igor

Last Name
Kapusniak

Student Number
20102236

Email
20102236@setu.ie

Request a Supervisor

Programme
BSc (Hons) in Applied Computing

Applied Computing Streams
Internet of Things

Proposed Project Title
Peer to Peer Communication Application

Project Overview
For my final year project, I will create a decentralized peer-to-peer

communication app for both mobile and desktop. It will support text, image messaging, and audio/video calls. All messages will be encrypted and signed using Pretty Good Privacy (PGP) to ensure only the sender and recipient can access the content. Unlike most modern apps that use central servers, my app will send messages directly from one device to another. To anonymise the sender, messages will be routed through the Tor network, hiding IP addresses and preventing traceability.

Benefits include:

1. No need for server hardware for API requests
2. No cloud-stored user data, eliminating the possibility of data leaks
3. Increased user privacy
4. Potentially faster speeds as there's no central bottleneck
5.The app will feature a modern UI and support group chats and workspaces (like Slack). To enable cross-device syncing, I will also create a self-hostable sync service, since there's no central server.

Development will be done primarily in Java using java.net for networking. Android Studio will be used for the mobile app and JavaFX for the desktop version. PGP will encrypt all communications, including audio/video calls. The sync server will be built with Node.js, Express, and a SQLite database.

Why I want to build this: I've always been interested in the low-level workings of internet protocols. I also believe strongly in privacy, and many encrypted apps today can be bypassed by their owners.

Which subject areas are related to this project idea? You may choose more than one.

Computer Networks	Software Development: Core	Software Development: Back End
Computer Security	Software Development: Front End	Software Development: Mobile

What Hardware and Software technologies do you plan to use?

Java, JavaFX, java.net, PGP, Android Studio, Tor Network, JS, SQLite

Permission for submission to be referenced as a Sample Student Submission.

No