

Smart Bike Companion

SE 101 | Project Proposal

Group Members

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Summary

The Smart Bike Companion turns any bike into a smart bike with anti-theft and location tracking capabilities. The main goal is to allow the owner of a bike to track its location through their smartphone. The system also acts as an anti-theft system as it detects when the bike is being moved without the owner's presence.

Software

- Frequently broadcast its GPS coordinates via SMS (GSM module)
- Pair with the owner's smartphone when they are in range (Bluetooth module)
- Detect when the device is being tampered with (accelerometer module)
- Sound an alarm when theft or tampering is detected (speaker module)
- Mobile/web app to connect to and manage the device

Hardware

- Arduino Uno
- SIM808 GPS/GSM shield
- accelerometer module
- HT-05 Bluetooth module
- speaker module
- Lithium-ion battery bank

Potential Challenges

- Sending, receiving and parsing data over SMS
- Creating a user-friendly initial Bluetooth pairing process
- Detecting tampering
- Integrating with third-party mapping service such as Google Maps