School of Computing  
CA326 Year 3 Project Proposal Form

**SECTION A**

Project Title: Venato (Bike Tracking App)

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Staff Member Consulted for Supervision: Michael Scriney

Project Description (2 pages max)

**Introduction**

Our project is an all-in-one bike device and companion app that will allow users to keep their bikes secure. Users will be able to interact with our mobile app, which will enable them to connect to our device and easily access the range of features that we will provide. The user will have access to features such as NFC technology to enable navigation, GPS tracking technology to provide accurate real-time location information, an accelerometer for journey information and a social menu to keep track of friends.

**Outline**

Our proposed project is based around a GSM Module device constructed and supported by Arduino (https://store.arduino.cc/products/arduino-mkr-gsm-1400). We will use this device as the basis to track and send a live GPS signal of its location through cellular data and wi-fi.

To get a connection and communication of its internal data, we will set up a connection between the GSM Module to a backend server (Django) and then use that gathered data to create a mobile application with a clean and modern front-end which then displays the Module data.

The application is served to allow users to make a profile, add friends and then have an interface to enable the Arduino’s location as well as to request their friend’s GSM locations to know their whereabouts.

**Background**

Our initial idea for the project first came about when we cycled to the beach last summer. We locked our bikes together at a public bike rack, before then going swimming for a few hours. Unfortunately, when we returned to get the bikes, the lock on Aaron’s bike had been broken and my bike had been stolen. We then thought to ourselves, “where could the bike possibly be?”. After these thoughts, we then did some research to see if there were any GPS tracking devices for bikes. To our surprise, there weren't many sources online providing products with such features, and the ones that did were either too expensive or were missing features, making these products obsolete for our intended use.

When the third-year project specifications came around we immediately jumped to the idea of creating a Bike Tracker as we believed it was an intuitive idea with a purpose for not only us, but also to a huge audience of cyclists who risk their bicycles being stolen and not having the ability to track the bicycle and recover it.

**Goals**

The project aims to provide cyclists with a level of security in regards to their bikes being stolen. In addition, we will provide cyclists with the ability to track their friends with permission to know their whereabouts with ease in order to meet-up or not get lost on adventurous cycles.

The project is in several ways useful. Firstly, if a user’s bicycle/scooter gets stolen, the user will be able to track the bicycle’s location and then determine where the bike is in order to go and collect it, or to call the Gardai in order to retrieve the bike. It will also be useful in the sense of being able to track other users’ bicycles with the aim of being able to meet up easier, or to know the whereabouts of the other user so if you get lost on a ride, you will be able to determine the location of others and be able to meet up once again.

**Programming language(s) and tools**

Back-end:

Python, Django, MySQL, Flask

Front-end:

Swift,  Java

**Hardware**

**Breakdown of work**

**Joao**

Hardware configuration, back-end server setup/connection, front-end development, MySQL data arrangement.

**Aaron**

Hardware configuration, back-end server setup/connection, front-end development, MySQL data arrangement.