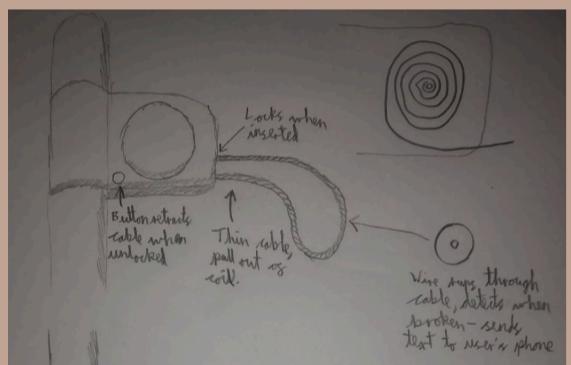


Intellilock

Group 21

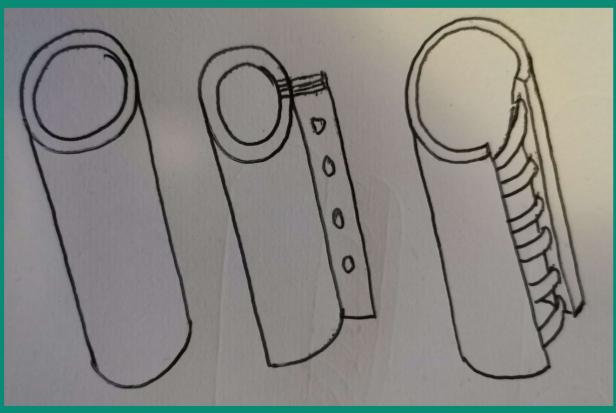
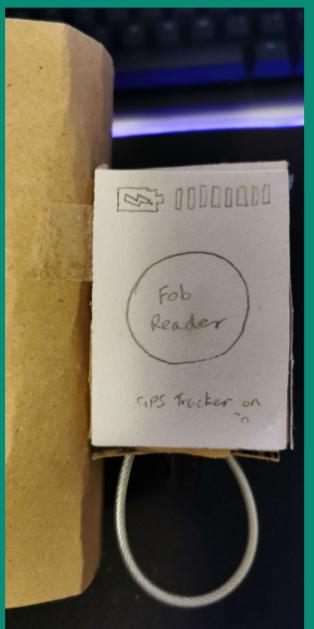
Cycling research and analysis

After researching into the aspects of cycling which could be improved. The analysis of our results identified two key areas. Bike security and cycling navigation. After developing lo-fi prototypes of each we decided to focus on a bike lock designed to intelligently deter theft with advanced security features



Lo-fi prototypes

From our initial sketches we went through many iterations, adapting our model to user feedback. Before making a physical lo-fi model



Front

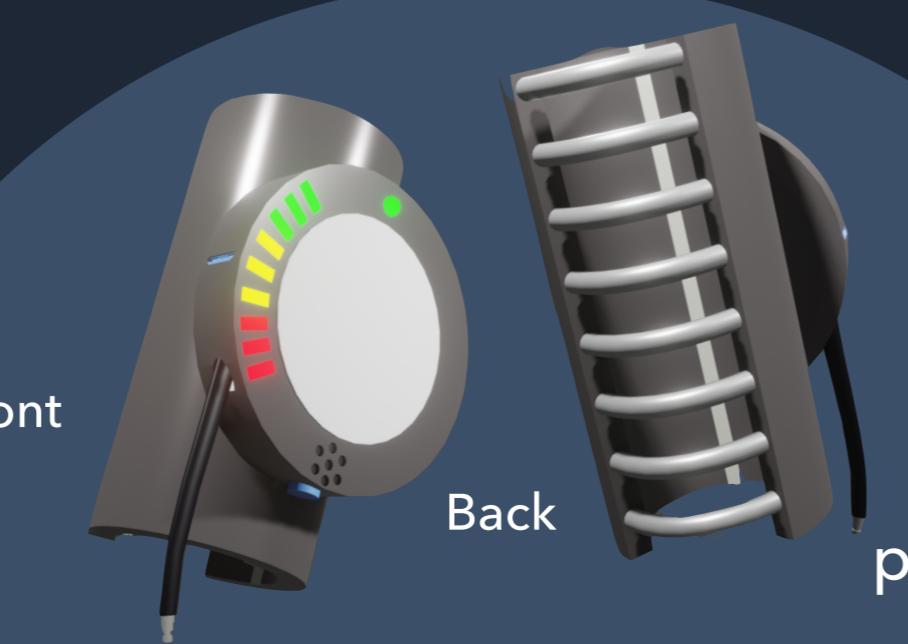
Front

Speaker

Sounds alarm upon bike theft

Hi-fi prototypes

After our first 3D render using Blender (shown below) we spoke to our peers and decided to further enhance the lock itself, reducing the complexity for a more cleaner look



Earlier Hi-fi prototypes

RFID Fob detection area
Place the fob here to unlock the bike

Our bike lock permanently attaches round your bike frame, using three rotating steel hooks. The mechanism is similar to that inside a pair of handcuffs. The wire cable can then be looped around the cycle stand and back into the lock in order to secure it. The cable locks itself once it is clicked in. The fob is then needed to unlock it. If the security of the bike is compromised it will alert you and deter the thief

Steel Hooks

Clasp round the bike frame to attach the lock. This is operated electronically by holding the fob over the fob detection area for 10 seconds. The battery has a built in power-saving mode in order to avoid complications for unlocking the hooks

Security bike lock



Back

Cable

The cable fastens the bike to the cycle stand. If the cable is cut it triggers the security response

GPS & Tracking system

Embedded into our bike lock is a GPS device which can track the bike's location. This is updated every 10 minutes during normal operations and every 2 minutes during a security breach. The location can then be viewed online, following the details given in the text sent to your mobile phone as outlined in our bike theft scenario



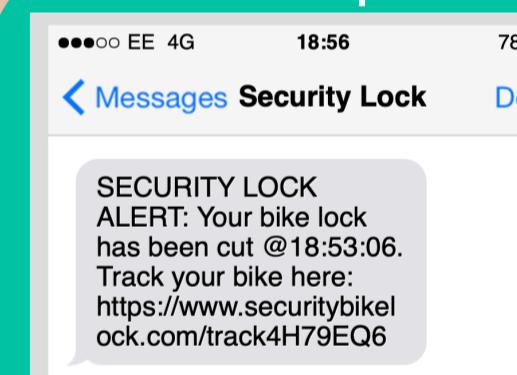
Scan the QR code to watch our video demonstration of the bike lock

Fob indicator lights

Press the fob button for it to display the current status



Text message response



Bike lock setup and theft scenario response

Below are the steps the device takes if the security of the bike is comprised, once the lock has been set up

