PAPER PROTOTYPE

An early part of the process saw the development of a paper-prototype that was tested with several people. The concept being that the Guardian Cycle systems as then envisaged could be quickly and efficiently tested.
The process was recorded on an iPhone, and the narrative of using the device can be demonstrated in the series of still images overleaf. At this point in the design process only two elements were involved, the M5Stack and a web system. Only the M5Stack was demonstrated at this paper-prototype stage, although it was already planned that the device could be connected to the webpage on a computer for the initial set-up (using a micro-USB connection).

The paper-prototype consisted of the user initialising the device by creating a user account and entering in height/weight/fitness information the data from which enables the calorie counting algorithm to function. It was assumed, and explained to the tester, that elements of the user set-up, i.e. entering an email account etc had been removed from this part of the test due to time constraints.

Then the user starts a cycle ride, and the route is displayed on a live feedback map, and at the cessation of the ride various data elements such as distance, ride duration and calories burnt can be displayed.

Whilst the initial tester feedback was positive, in as much as the system was simple to use and understand, a fundamental point was demonstrated by one user who objected to having to provide email or other data that would enable them to be identified.

The basic premise of the system had been that a user would create an account for two main purposes. The first was that a loved one, or another interested party whom the user had invited, would know where they where and, that in the event of an accident an alert could be sent to the emergency services/interested party with a GPS location. The second purpose was to enable the user to create rides or routes, and to achieve personal best times or challenge friends to beat them on that route.
After negative feedback it was realised that the device should be built so that registration could be bypassed. This would enable the fundamental road safety element – that of indicator/break lights to still be used. Unfortunately the GPS system required the website registration to be active, so the fall alert would not function in this user case.

However it was felt that such a stripped back system should be offered.

Further questions raised included how the device would work i.e. did it connect to a mobile phone or have its own transmitter. It was decided that a WiFi system using a mobile phone hotspot was the best solution, but for those endurance riders who didn't want to drain their phone battery, an optional SIM card for direct communication to the webpage would be offered.

The live map display would later be removed from the device and only feature on the webpage for safety reasons i.e. it may prove distracting to the user.

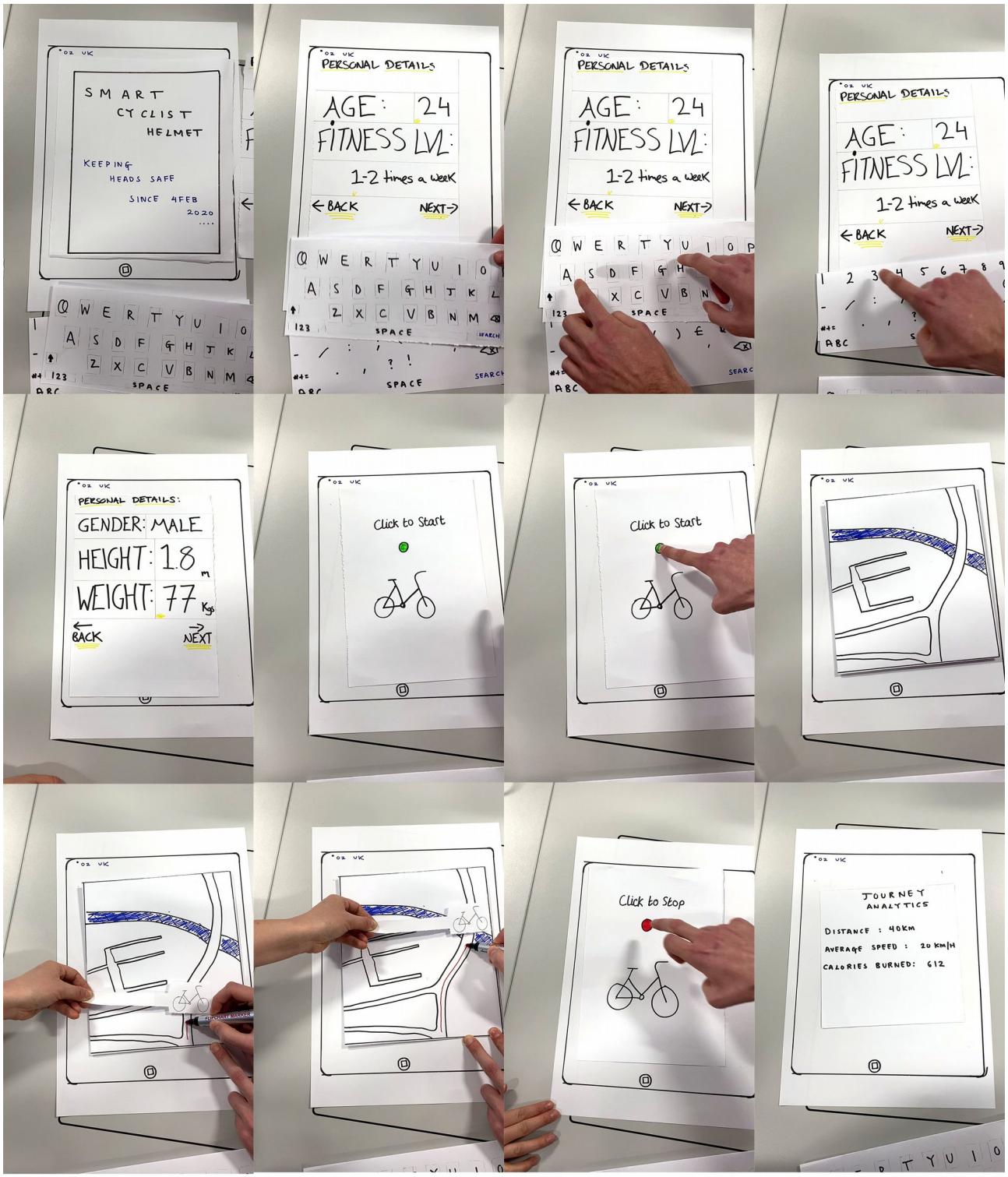

Figure: Still images taken from paper prototype video. Using a pop up keyboard the user provides personal details on first sign up that will be used in final image the route they are taking is illustrated on the screen.