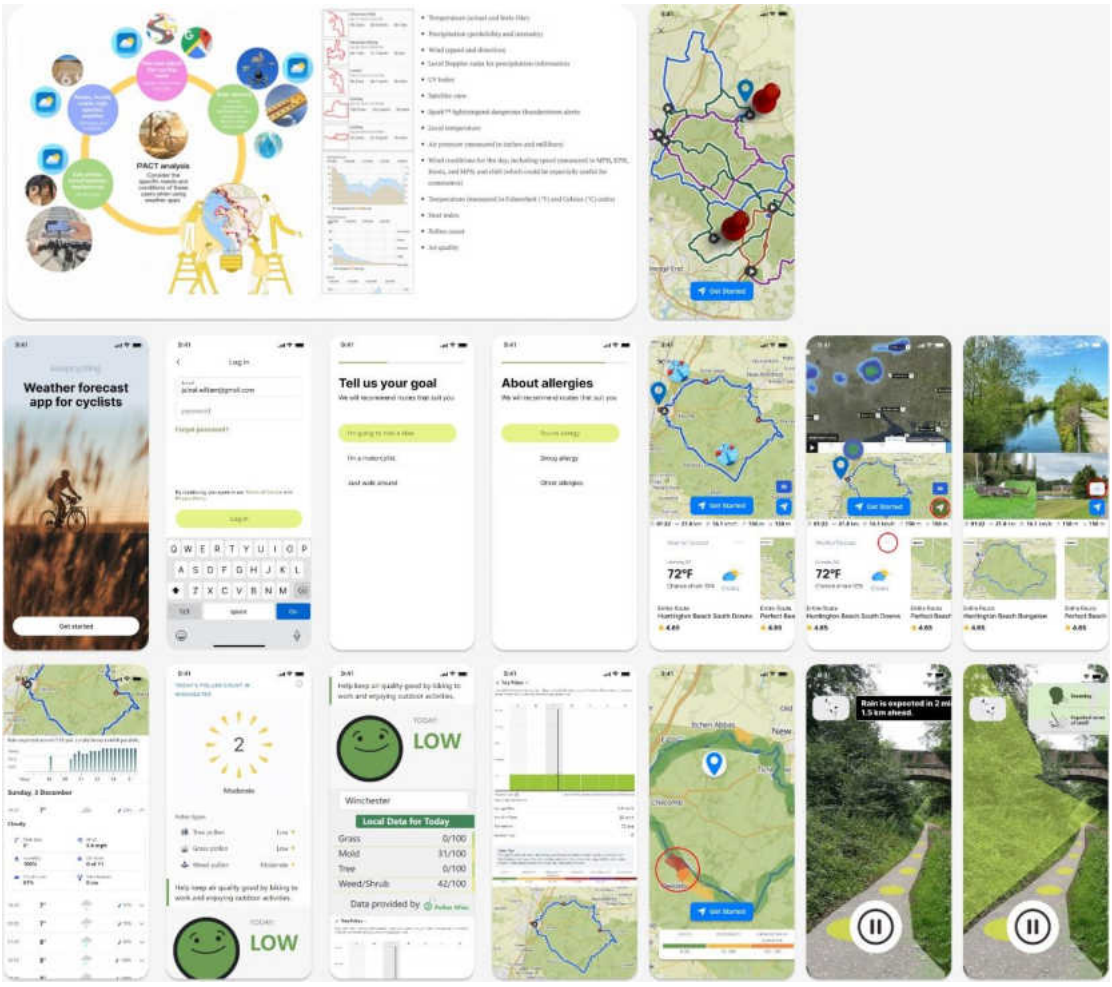
Project3 BECOMING CYCLONIC

Test Links: https://youtube.com/shorts/j7bR7sqz94E?feature=shared



At the beginning of the project, we first analyze the factors that affect the riders, road conditions (muddy or not), temperature, wind direction, air pressure, pollution index, pollen index, etc. However, in our preliminary research, we found that almost all navigation apps on the market have the function of viewing and broadcasting short-term weather forecast, and simply doing a similar software will not have any highlights. Therefore, in order to realize USP, our first step is to go deep into the user group and interview various groups of riders to understand the shortcomings of the current riding navigation weather forecast and the functions that can be further developed. After interviewing 20 cyclists, it was found that 20% of cyclists would suffer from pollen/plant allergies during cycling, which made their preparation work cumbersome, such as checking the local pollen index, preview in advance whether there are allergens in the route, and wear masks and carry various medications. For example, Pine tree pollen may cause asthma, aller-gic rhinitis, and allergic conjunctivitis (Oh, 2023). By analyzing the proportion of this group among cyclists, we can see that this specific user group is a huge market and is not limited to cyclists. and Birch pollen is the most dominant tree pollen in Northern and Central Europe and is a major cause of allergic rhinitis and, possibly, asthma symptoms (Biedermann, 2019).

Therefore, we initially decided to solve the problem of pollen allergy in the riding of this large group of people. By obtaining weather data, pollen index and pollen source location, and creating a calculation model, this specific user group can obtain pollen allergy source information in the riding immediately, so as to avoid troubles. And we want to use voice broadcasting technology (headphones, speakers) and MR Technology (presented on the mobile phone screen /MR Glasses) to meet the user to obtain information timeliness, immediacy, fun.

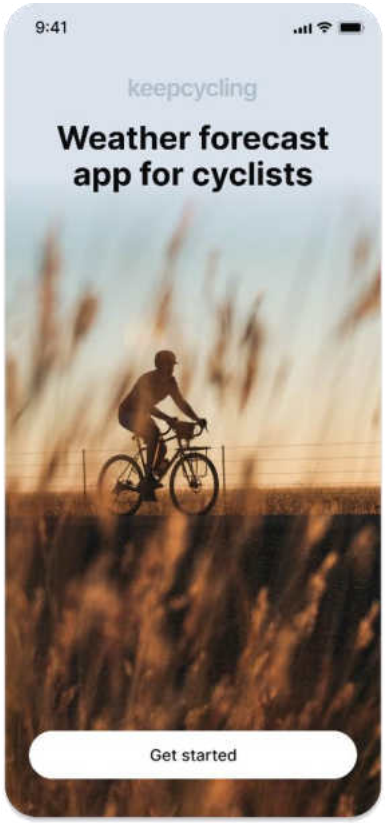
After the direction is determined, the relationship between the influence of pollen on people and weather is analyzed. By drawing a "mind map of factors affecting pollen" and searching relevant literature, it is concluded that wind direction, air pressure, humidity and other influencing factors, among which wind direction and humidity (whether it rains or not) are the two most important points. According to the data of nine pollen monitoring sites in the UK from 2000 to 2010, Meteorological variables such as daily rainfall; maximum, minimum and average temperatures; cumulative sum of Sunshine duration; wind speed; and relative humidity were related to the grass and birch

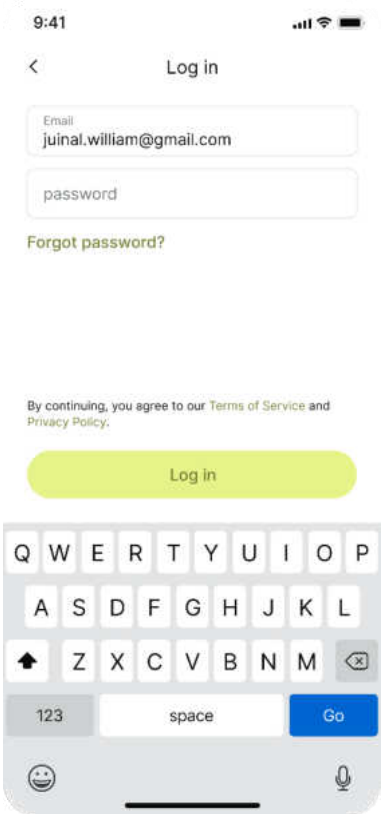
pollen counts for the pre-peak, post peak and the entire pollen season. Average temperature, wind speed and rainfall were the most important variables influencing the count of birch pollen in the air. Both wind speed and rain produced a negative correlation with birch pollen count in the air and average temperature produced a positive correlation (Khwarahm, 2014).

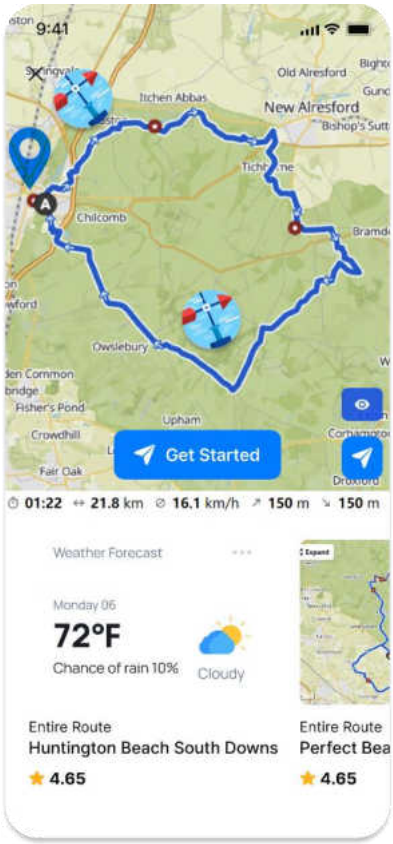
With theoretical support, we obtained the local pollen source location (gps) and weather information from the weather forecast website, and broadcast the pollen index information for riders in real time through algorithms (pollen source gps, wind direction index, humidity index).

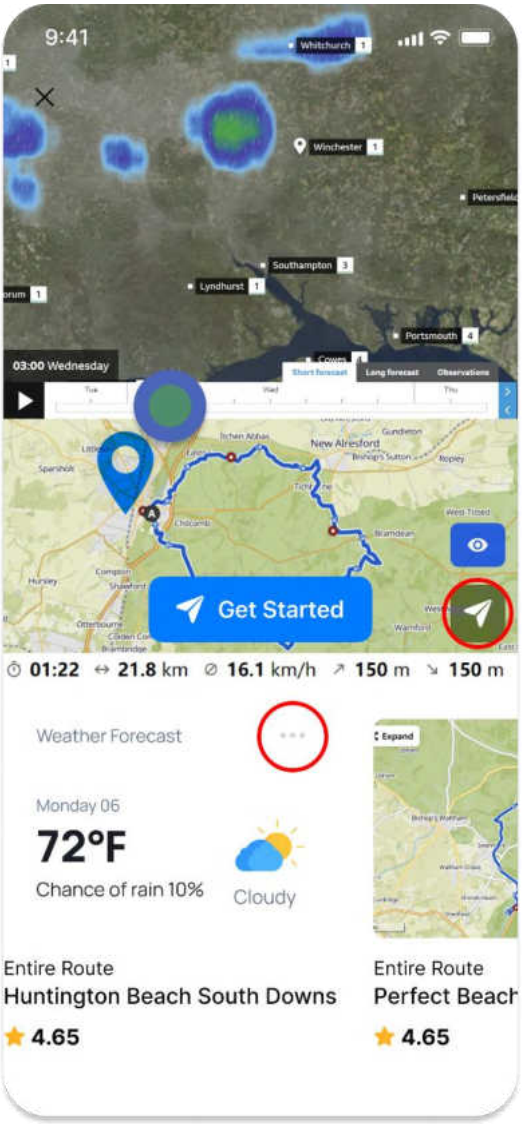
The following research methods were used in this project: Sample survey: Data and insights were collected by interviewing 20 cyclists during the initial research phase. Empirical research: Analyze existing products in the market and identify their shortcomings. Analyze whether existing navigation applications provide comprehensive pollen information.

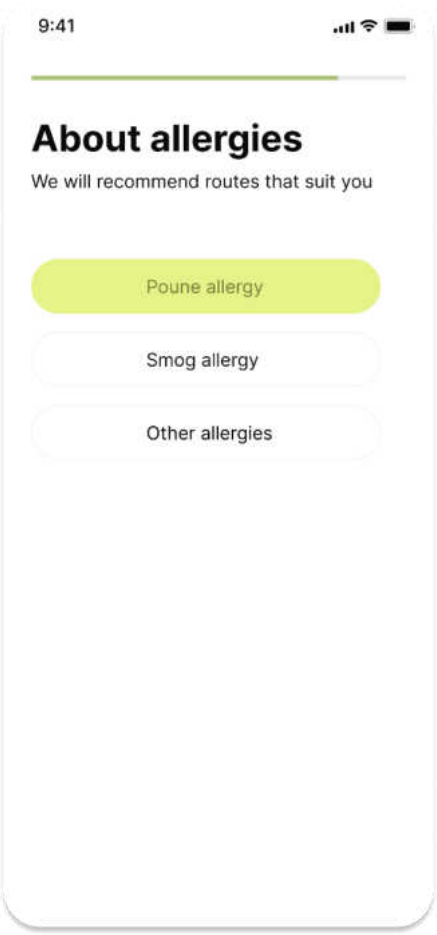
Define USP: In determining the pollen index as a unique Selling point (USP).
In which I cited several academic sources to support its arguments and findings regarding the sources of pollen allergy, citing studies on health problems that pine pollen can cause (such as asthma, allergic rhinitis, and allergic conjunctivitis), Citing studies on the effect of major tree pollen (birch pollen) in northern and central Europe on allergic rhinitis and possible asthma symptoms and on the relationship between pollen counts and meteorological variables, citing Khwarahm's (2014) study, which analysed data from nine pollen monitoring sites in the UK between 2000 and 2010, The relationship between daily rainfall, maximum/minimum/average temperature, cumulative sunshine duration, wind speed and relative humidity and pollen counts of grasses and birch trees was found. These academic studies were used to support the main hypothesis of the project, namely that pollen allergies have a significant effect on cyclists and that specific meteorological variables have an important effect on pollen counts. Data analysis and model building, I use the data and theories obtained from academic research to build their weather forecast and pollen count models. By referencing these studies, applications designed for this purpose provide a solid empirical foundation and enhance the credibility of their claims. In conclusion, the scientific nature and reliability of the project are strengthened by citing relevant academic research.

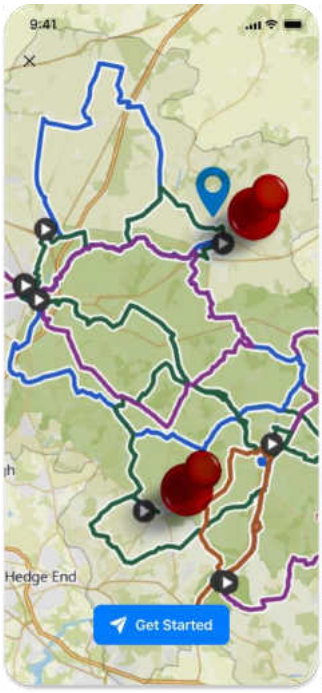




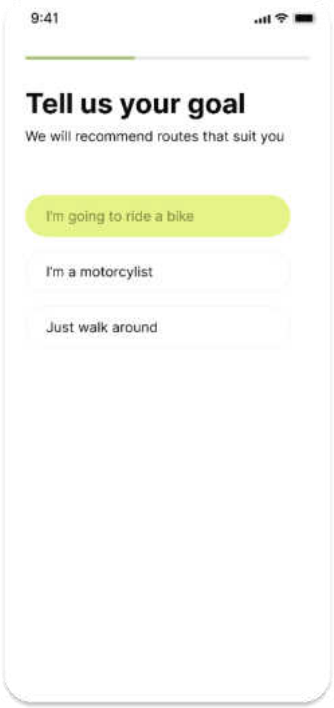

9:41
Old Alresford
Itchen Abbas
New Alresford
Chilcomb
Owslebury
Upham
Crowdhill
Fair Oak
Get Started
01:22 21.8 km 16.1 km/h 150 m 150 m
Weather Forecast
Monday 06
72°F
Chance of rain 10%
Cloudy
Entire Route
Huntington Beach South Downs
4.65
Entire Route
Perfect Bea
4.65


9:41
Whitchurch
Winchester
Southampton
Lyndhurst
Portsmouth
03:00 Wednesday
Get Started
01:22 21.8 km 16.1 km/h 150 m 150 m
Weather Forecast
Monday 06
72°F
Chance of rain 10%
Cloudy
Entire Route
Huntington Beach South Downs
4.65
Entire Route
Perfect Beach
4.65


9:41
About allergies
We will recommend routes that suit you
Poune allergy
Smog allergy
Other allergies

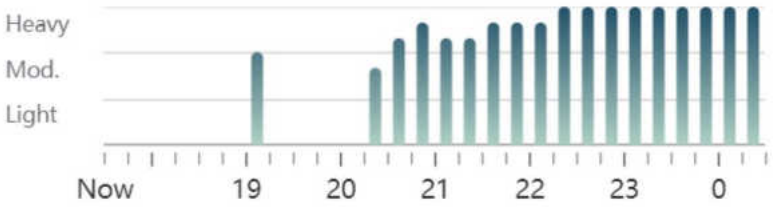

9:41
Hedge End
Get Started


01:22 21.8 km 16.1 km/h 150 m 150 m
Entire Route
Huntington Beach Bungalow
4.65
Entire Route
Perfect Beach
4.65


9:41
Tell us your goal
We will recommend routes that suit you
I'm going to ride a bike
I'm a motorcylist
Just walk around


9:41
Help keep air quality good by biking to work and enjoying outdoor activities.
TODAY:
LOW
Winchester
Local Data for Today
Grass 0/100
Mold 31/100
Tree 0/100
Weed/Shrub 42/100
Data provided by Pollen Wise

Rain expected around 7:00 pm. Locally heavy rainfall possible.



Sunday, 3 December

18:00	7°		23%

Cloudy

Feels Like **5°**	Wind **S 6 mph**
Humidity **100%**	UV Index **0 of 11**
Cloud Cover **87%**	Rain Amount **0 cm**

19:00	7°		72%
20:00	7°		74%
21:00	8°		92%
22:00	8°		100%

9:41

TODAY'S POLLEN COUNT IN WINCHESTER

2

Moderate

Pollen types

Tree pollen	Low
Grass pollen	Low
Weed pollen	Moderate

Help keep air quality good by biking to work and enjoying outdoor activities.

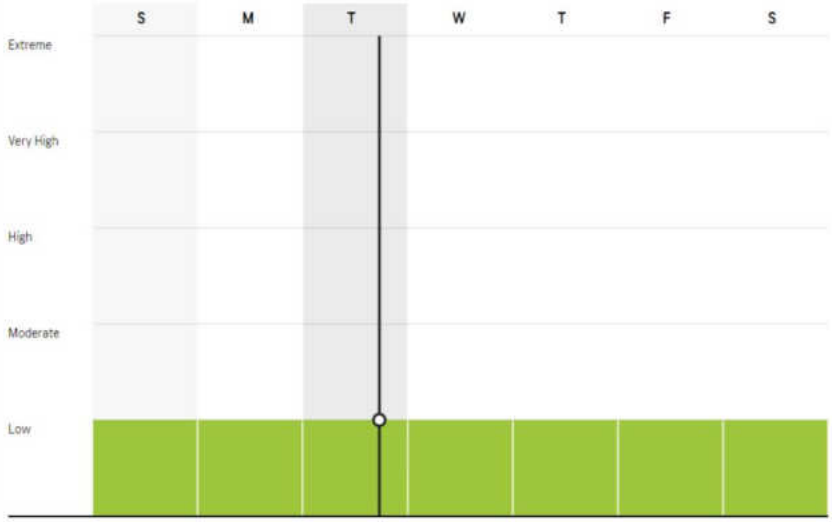
TODAY:

LOW

9:41

Tree Pollen

Tree pollen is fine, powdery pollen, making it easy for the wind to carry it for miles. The amount of tree pollen in the air dramatically varies by season and geographic area.



What this means

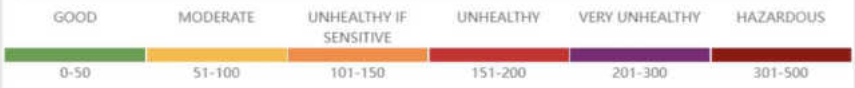
Contains modified Copernicus Atmosphere Monitoring Service information 2023

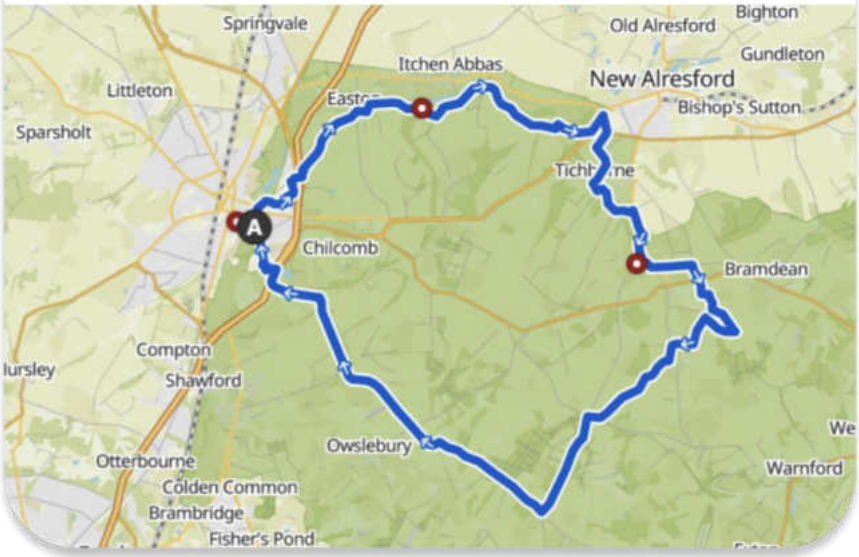
TODAY'S WEATHER FACTORS

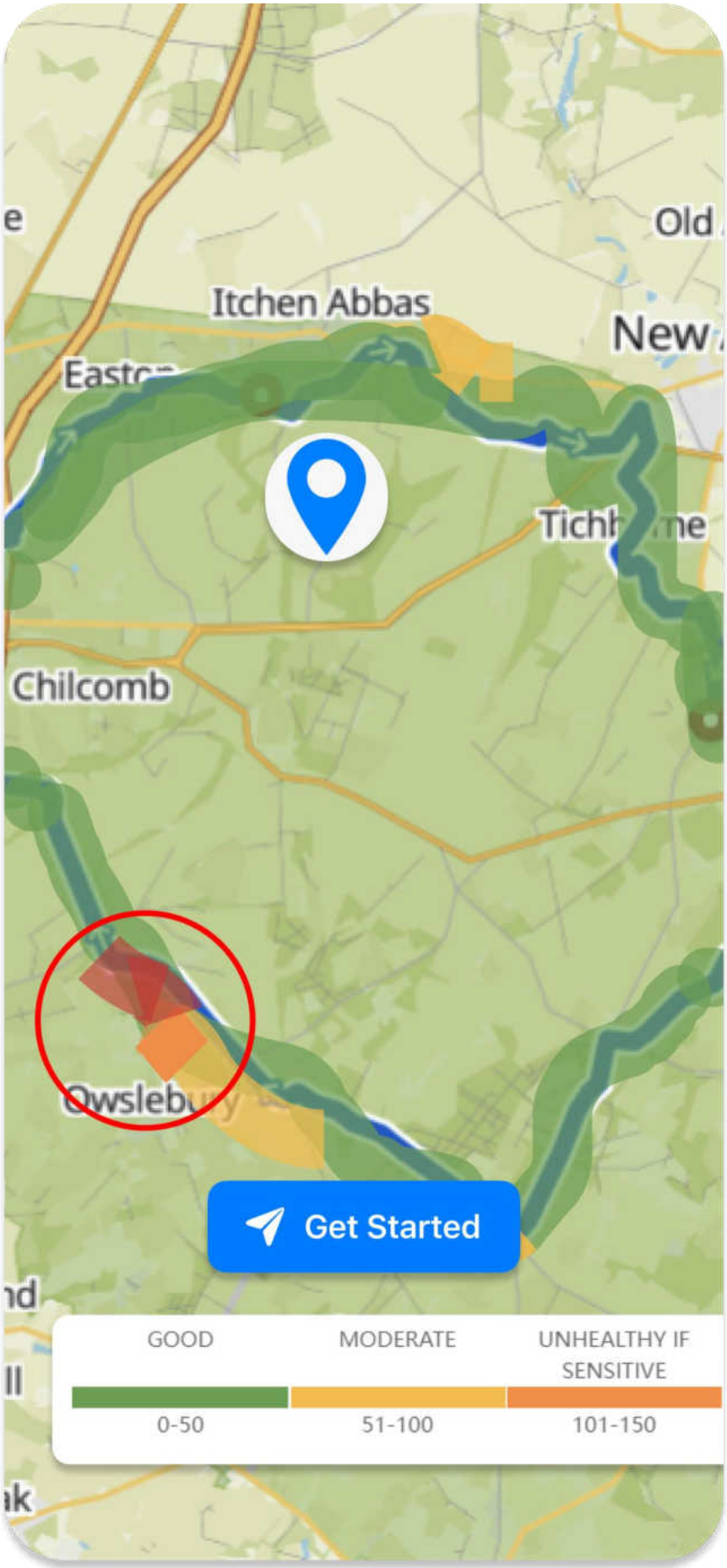
Average Wind	S 9 km/h
Max Wind Gusts	22 km/h
Rain Amount	7.0 mm
RealFeel® High	5°

Safety Tips

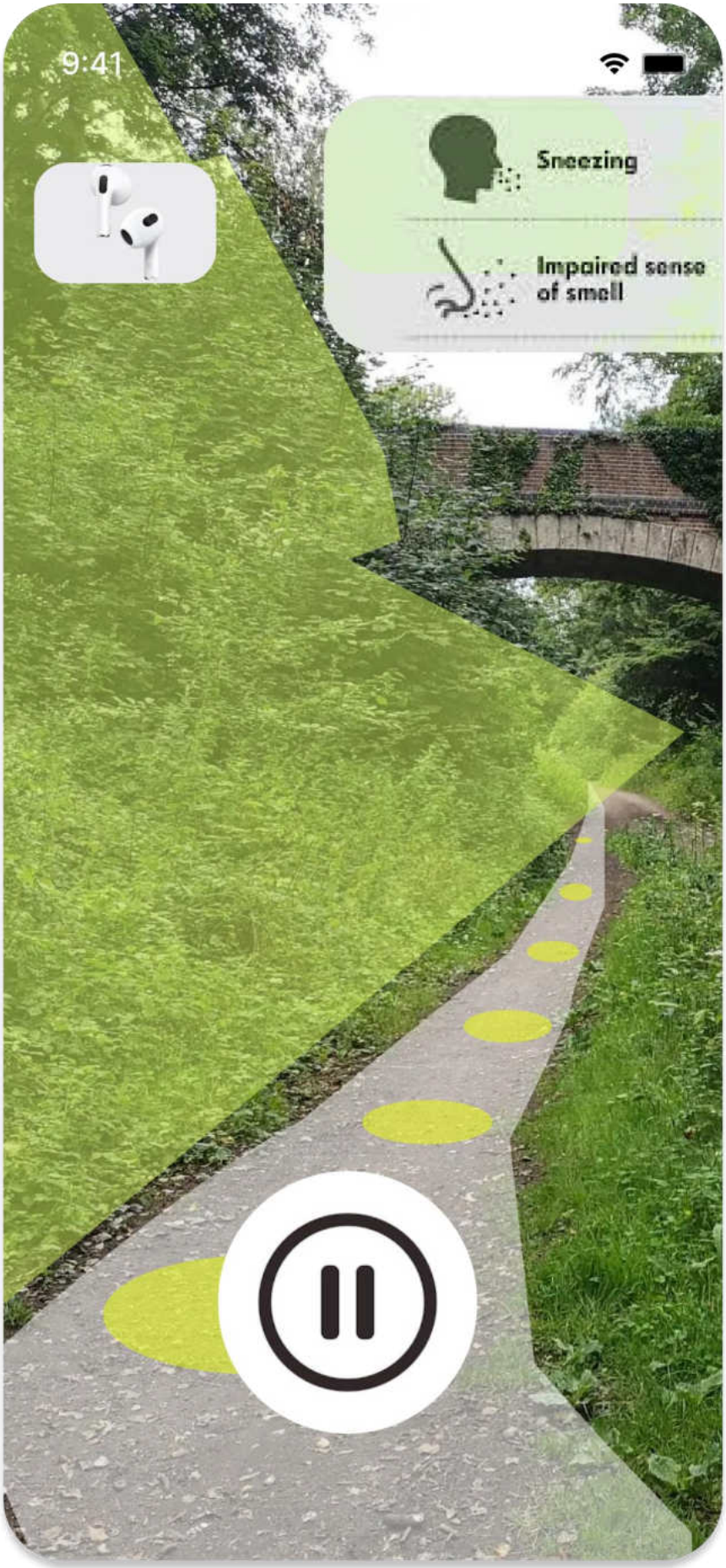
During peak season for tree pollen, keep your windows and doors closed, especially on windy days. Avoid outdoor activities in the early morning, and be sure to shower and change clothes after coming indoors. Taking allergy medication can also help alleviate symptoms.






Itchen Abbas
Chilcomb
Get Started
GOOD
MODERATE
UNHEALTHY IF SENSITIVE
0-50
51-100
101-150


9:41
Rain is expected in 2 mi
1.5 km ahead.


9:41
Sneezing
Impaired sense of smell