

# SandSpace

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The summer of 2020 was a different one: sea waters remain salty, the rivers ones persist crystal and clear; nonetheless, in the air, the threat hovers... The Covid-19 pandemic posed unforeseeable challenges to everyone, from the government to the civil society. Since Portugal is a country with crowded beaches, the problem of controlling seaside crowds arose. This unique situation led to the development of the mobile application SANDSPACE. Through a georeferencing system that includes 680 beaches, users have access to a system of traffic lights that indicate the situation of each beach: green - not a lot of people; yellow - few vacant spots; orange - beach close to its maximum capacity and red - beach closed; beaches without information appear with smaller green signs. The information is provided by the users of the application and refers to the previous two hours. By using a graph, SANDSPACE also indicates the number of people who provided the information and the time they did so. Weather information associated with each beach was also introduced. When it was first released on Google Play, the app had such a considerable number of downloads, that the Portuguese Environment Agency (APA) contacted SandSpace to exchange information. This second phase, led to profound changes to the App, integrating official data as well as the creation of an Application Programming Interface to provide SandSpace users non-identifiable data. More than 15,000 users downloaded the App and thousands of users' contributions were registered.