JUNCTION✕
BUDAPEST

25-27 October 2019

HOME

CHALLENGES

Google – Track the pack

Give insight into the movement patterns of wildlife and show how we can prevent human-built structures from interfering with them.

Introduction to the challenge

We at Google are always looking for challenges where our technology can have a positive impact on the world. We invite you to design and implement a system using Google technology and infrastructure that benefits both people and our natural environment.

There are many animal species (e.g. deer, wolves, large birds) whose habitats have been disrupted by man-made structures (e.g. highways, power plants). Encounters with these structures can be dangerous to the animals and may cause disruption to human

activities. In some cases, animals can learn to avoid these structures, but in many cases, they cannot because they interfere with their normal movement patterns.

We would like you to build a PoC application showcasing an innovative solution to prevent or mitigate the disruptions caused by and to human-built structures. Assume that tracking devices are attached to some animals. These devices send geographical coordinates and movement sensor data regularly when they are connected to the network. The system you design may be a tool to be used for environmental impact assessment, applied by animal protection organizations and wider society to monitor the movements of animals and help make informed decisions and take action.

Who we are

Google is committed to organizing the world's information and making it useful and universally accessible to everyone. In that spirit, Google inspires talents all across the globe to learn and grow by setting tough challenges worth solving. Googlers make sure that people involved have fun while learning new things: they gain knowledge together as a community. Either by collaboration or competition, creating strong professional relationships with inspired and gifted people is a fundamental building block of the company's future, especially for the growing Google Budapest site.

What we will provide

We'll provide participants with Google Cloud Platform accounts.

Implementation and technology

Google Cloud Platform (GCP) provides lots of opportunities for developing stable, scalable and secure data ingestion pipelines where out-of-the-box analytics and AI solutions can easily be attached to your feed to get the most out of the available data. We expect you to

leverage this technology while solving our challenge, but it depends on your design which services are part of your architecture. The only requirement from our side is to use either Cloud IoT Core or Firebase to ingest data. These services can function as the main entry point for the sensor data collected from the tracking devices, and they can also function as a messaging channel for cloud-to-device use cases.

In order to demonstrate your system's capabilities we would like to ask you to implement a device simulator, which is capable of sending GPS and motion sensor signals to the GCP data ingestion pipeline. Even better if a fleet of devices can be simulated. You will use this client to present your use case and your solution to us, so it is completely up to you what kind of data points these simulated devices will send to the backend service.

Judging criteria

- Giving an easy to understand data representation to organizations that have no technology experts or data analysts.
- Working PoC
- Originality, creativity and quality
- Scalability and security

Prizes

Our prize is a one day trip to a larger Google office in Europe. Meet and lunch with Googlers.