Skatås parkrun augmented reality application

Background

Skatås parkrun is a free, weekly, timed 5 km running or walking event which takes place every Saturday morning from Skatås motioncentrum. Parkrun provides many benefits for participants, both volunteers and runners. It provides both an easy way back into exercise for those who have not exercised in a long time, a weekly time trial for competitive club runners, or a nice jog around a beautiful nature reserve chatting to people who will become your friends. Both running and volunteering provide physical and mental health benefits, and there is a real sense of community.

However, there is a problem with getting sufficient volunteers each week for certain of the volunteer roles out on the course, and this is partly to do with the difficulties of navigating an unmarked course. Course Marshals are required to put up signs along the course, on the way to their position, and pre-event set-up volunteers are also required to put up several signs in various locations around the route. Photographs and written descriptions of the route are provided, but they are of limited use in an area where hundreds of trees and paths all look very similar. We want to remove this friction to make it easier for people to volunteer. The solution could potentially also be generalisable to many other trail running events across the world.

Description

We're looking for a group of students who would be interested in developing an Augmented Reality application which could be used by volunteers to aid them in positioning the correct signs at the correct points on the route, using the most efficient path to get there, and to find their marshalling position easily. The app would accept input from the event organisers with map of the route, and GPS co-ordinates for each of the signs and marshal positions. The app would then enable the volunteer to select which part of the route they were responsible for, and would direct them to the appropriate locations.

As GPS can be more than a little inaccurate in such wooded areas, the app should also provide functionality to view photographs of the locations for those times when the Augmented Reality and actual world positions do not seem to match up.

Suggested Reading Material

- The Skatås parkrun website, which explains the concept, volunteer roles, and has a basic google map of the route. https://www.parkrun.se/skatas/
- Information on some AR apps for navigating the great outdoors https://www.stambol.com/2020/08/31/augmented-reality-outdoor-apps-to-wrap-summer/
- A paper discussing a similar AR project for forests in a more urbanised location https://web.archive.org/web/20170810160118id_/http://people.ischool.berkeley.edu/~kim iko/papers/IJMHCI2012.Ryokai.MARLearning.pdf
- A paper discussing a more complex AR application which contains many nice-to-have features but goes beyond the likely scope of this project https://www.mdpi.com/2076-3417/11/16/7515/htm

Target Group
D, DV, IT, E and I

Special Prerequisites

The exact emphasis of the project will depend on student capabilities, but will involve some mix of software development, augmented reality, and user centred design. It would also be useful if at least one member of the project group would enjoy physically walking the route of the parkrun to familiarise themselves with it.

The author of this proposal speaks some Swedish, but not at a high enough level for all discussions to be conducted in Swedish. However, some mix of Swedish/ English for discussions and correspondence is possible, and written submissions would be accepted in either English or Swedish.

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