Abstract

Runners who strive to complete a marathon will need to make many sacrifices in their daily lives and train for months in order to accomplish such a physical and mental endeavor. Given this, having a successful race experience is pivotal. All the hard work could be compromised without the proper tools to help select and plan for the race itself. There are numerous resources that provide guidance for runners focusing on how to prepare physically for the distance, minimize injury and maximize performance. What is currently lacking are resources focusing on the individual needs of the runner and the logistical process of selecting and preparing for a race. The development of this Web GIS application used a geodatabase and Web GIS technology that allows a runner to personally select criteria to find a race that meets their needs, view races and elevation profiles on a map, select a 3D interactive view of the race courses to study the terrain, and view nearby lodging and dining options. Geospatial technology gives a runner a better understanding of the course and streamlines the travel process, reducing stress and increasing the likelihood of a successful and enjoyable race experience. After careful analysis of a runner's needs and the marathon selection process, and evaluating what techniques and methods should be used, a Web GIS application was developed to help facilitate the process for an enhanced race experience. In addition to providing a valuable tool for runners, this application provides a template for developers constructing a Web GIS application for any athletic or travel based event. Emerging technology will transform the Web GIS application into an even more powerful tool. Utilizing predictive analytics which incorporates data, statistical algorithms and machine learning techniques, patterns from the race course can be modelled and compared with local terrain to create similar courses for training purposes. It's invigorating to think of what effect the amalgamation of GIS technology into the athletic world will have on an athletes' experience.