Tube Challenge 2013
Project Overview

James Griffith Andy Holt Chris Murkin Dominic Newman
Jack Robinson

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Overview

Since he was a young boy, James Griffith has dreamed of visiting every Tube station in London in a single day. Now, at the age of 21, he's hoping to make this dream a reality. But he doesn't just want to visit every station in a day, he's planing to break the world record by visiting every station, using only public transport and on foot, in the fastest time ever.

The London Underground is the world's oldest underground railway. Opening in 1863, and now comprising 402 km of track, the Tube forms a vast network of underground tunnels and carries over a billion passengers per year through London. 2013 marks the 150^{th} year of operation of the Underground, and is a fitting time to attempt the challenge.

The challenge is simple: to visit all 270 stations on the Tube network in a single day. To beat the record, he needs to do it in under 16 hours, 29 minutes and 13 seconds.

But being simple by no means makes the challenge easy. With such a complex transport network and so many passengers, delays are inevitable and unpredictable. A delay of just a few minutes in the chosen route could render the whole challenge unachievable due to missed trains and connections. The physical element of the challenge is also gruelling: equivalent to running a marathon through busy London stations, up and down thousands of steps and sprinting to make fast connections. Another significant issue is shear boredom: over 16 hours of sitting on Tubes in a day will almost certainly make James want to quit; taking a good book will be of utmost importance.

The Challenge

The Tube Challenge is an established contest, first run in March 1960. The official rules have been refined over the years and the record has been broken many times. The Tube has changed considerably during this time, causing the record to be reset on multiple occasions.

The rules as they stand state that:

- The participant need not travel along every line of the tube, but must pass through every station in the network.
- Only public transport – such as train (underground or overground) and bus – and foot may be used. Private transport, including cars and bicycles, may not be used.

The Team

With such a huge task ahead of him, James has enlisted the support of some friends. The team has good experience of applying engineering principles to fun challenges with 2012 Cambridge Cardboard boat race, where this team formed the engineering brains behind the famous 14 man behemoth that graced the Cam.

James Griffith

James is the driving force behind the tube challenge, and he will be the one who actually visits the tube stations. James is well suited to the task: representing Cambridge in 400m athletics makes him ideal for running through and between stations. James also brings his engineering mind to the task of finding the best route around the stations.

Subject: Engineering (Civil)
Role: Leader and runner
Coffee time beverage: Taylor's Rich Italian with a drop of milk

Andy Holt

Andy leads development of the technology side, bringing his information engineering background to the task of finding the optimal route and monitoring delays.

Subject: Engineering (Electrical and Information)
Role: Software monkey
Coffee time beverage: Colombian, white

Chris Murkin

Chris brings his love of optimising flow networks to the challenge of finding the best route. A keen cyclist, if ever cycle support is required, Chris will be glad to provide it.

Subject: Chemical Engineering
Role: Optimisation
Coffee time beverage: Strong and black

Dominic Newman

Dominic brings his love of railways and underground systems, as well as bringing a touch of sophistication to the team. A Londoner, Dominic also brings his inside knowledge of the tube system to bear.

Subject: MML (French and German)
Role: Insider knowledge
Coffee time beverage: Tea. Of course.

Jack Robinson

Jack is passionate about all aspects of transport and optimisation. Jack brings his expertise of modelling and optimisation to the challenge.

Subject: Maths, Masters in Transport Planning
Role: Optimisation
Coffee time beverage: Hot chocolate

The Strategy

An initial route will be found as the planned idea route. This will then be used as the basis for the final route. Additionally, live information of delays will be used to modify the route on the day, ensuring that a delay doesn't hold up the challenge.