Virtual Bicycle Racing in Google Maps

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Indoor Cycling with Google Maps

Stationary Bike

- Rotation sensor (reed-switch)

Google API: Maps/StreetView/Earth

- Arduino microcontroller
- Python server
- Friend
User Experience

Users run a python program, which opens a web browser to handle all further interactions:

1) Connect to friends. 2) Choose route. 3) Begin race.
Distributed Races Over the Internet

Requirements:
1. Agreement of common race route and start.
2. Fast updates of relative position.
3. Fair finish (ties are allowed).

Elected ‘**starter**’ is responsible for sounding off the start of the race. Slow ACKs result in a ‘false start.’

**Finisher** calls a global snapshot, checks that no one else has crossed the finish line. Else, declare a tie.

**Updates** do not require acknowledgments. We do not assume FIFO, so we include timestamps.
Possible Extensions:

1. Freedom to explore 2D (instead of 1D route).
2. Google earth 3D environments.
3. Other workouts
   1. Treadmills
   2. Ergometers
   3. Stairmasters
4. VR headsets
Acknowledgements

1) Brett Graham and his Google-Bike project example code.

2) Mike Williams’ Google Maps tutorials.

3) Lette Moloney’s StreetView-Bike implementation ideas.

4) Google Maps API

5) Google Earth’s Monster Milktruck example.