i++: run your FOSS off

Automatically counting laps at the 24 hour run in Leuven

Roel Standaert, FOSDEM 2018
Late October, Tuesday 8pm until Wednesday 8pm
- Student organisation based in Leuven, Belgium
- IT services for students
- FOSS-minded
Cheap webhosting for students and personnel

€ 7/j - 1GB
€ 12/j - 2GB
€ 20/j - 5GB

Meer info: https://ulyssis.org
our servers
Hacking into our own servers
Workshops

**Workshop**

**git**

*voor beginners*

Deze workshop wordt mogelijk gemaakt dankzij de sponsoring van easyics

**Workshoptrack Command-Line**

*Modern LAMP*

Di 3 mei om 20u

Celestijnenlaan
200A 00.144

Inschrijven: ulyssis.org

**Workshop**

**Nederlands**

Ma 16 okt, 20u
200A 00.144

Wo 9 nov, 20u
Groep T module 1

More Information: ulyssis.org

**Workshoptrack Command-Line**

*Building a Gateway*

Do 12 mei om 20u

Celestijnenlaan
200A 00.144

Inschrijven: ulyssis.org
FOSS job fair
Check the job corner for more info
FOSS jobfair
http://opensourcejobfair.be
At the 24 hour run

- Network: wired + wi-fi
- Since 2013: lap counting
Checkpoint 1 (Main checkpoint)

Running direction

Checkpoint 2

Checkpoint 3

+/- 520m
Checkpoint ("reader")
Switch

Raspberry Pi type B

UHF RFID reader
UHF RFID tags
PVC tubes with handlebar tape
Name and full source code:

```java
i++
```
• Written in Java
• Reader
• (Replayer)
• Processor
• UI
• Publisher
Reader + Processor

Impinj Speedway Revolution R220 UHF RFID reader

Reader
- LIST: updates (JSON)
- PUBLISH update:#

Processor

Redis
- PUBLISH update:#

SUBSCRIBE update:#
Retrieves updates

LLRP
Date: 02 February 2018  
Time: 23:01:21  
Start date: 02 February 2018  
Start time: 18:23:53

<table>
<thead>
<tr>
<th>Nb.</th>
<th>Pos.</th>
<th>Name</th>
<th>Rounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Apolloon</td>
<td>198</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Ekonomika</td>
<td>189</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>LBK</td>
<td>190</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>VTK</td>
<td>199</td>
</tr>
<tr>
<td>5</td>
<td>8</td>
<td>Wina</td>
<td>168</td>
</tr>
<tr>
<td>6</td>
<td>17</td>
<td>Enof Leuven</td>
<td>123</td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>Psychokring</td>
<td>151</td>
</tr>
<tr>
<td>8</td>
<td>13</td>
<td>Letteren United</td>
<td>154</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>Atmosphere</td>
<td>169</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>4 Speed</td>
<td>159</td>
</tr>
<tr>
<td>11</td>
<td>6</td>
<td>Industria</td>
<td>172</td>
</tr>
<tr>
<td>12</td>
<td>14</td>
<td>Oker</td>
<td>154</td>
</tr>
<tr>
<td>13</td>
<td>15</td>
<td>VRG</td>
<td>153</td>
</tr>
<tr>
<td>14</td>
<td>12</td>
<td>Politika</td>
<td>158</td>
</tr>
<tr>
<td>15</td>
<td>18</td>
<td>Run for Specials</td>
<td>104</td>
</tr>
<tr>
<td>16</td>
<td>5</td>
<td>Medica</td>
<td>186</td>
</tr>
<tr>
<td>17</td>
<td>9</td>
<td>Pedal</td>
<td>167</td>
</tr>
<tr>
<td>18</td>
<td>10</td>
<td>Lerkeveild</td>
<td>167</td>
</tr>
</tbody>
</table>
Static HTML + JavaScript updating every 3 seconds
Despite the weather
Not the only N hour run

• Antwerp: 10 hour run (also counted by ULYSSIS)
• Ghent: 12 hour run (by our friends of Zeus WPI)
• Even my home town of Merksplas!
What if everyone could easily and cheaply organize events like this?
Problems with this system

• Not user-friendly enough
  ⇒ Someone who can install a blog on shared hosting should be able to do it

• Relatively expensive
  ⇒ Use BLE: iBeacon/Eddystone/... in baton, checkpoints: old or cheap Android phones?

• Specialized for trusted LAN
  ⇒ Redis not suitable
Thank you!

Want to contribute or organizing something similar?
https://github.com/ULYSSIS-KUL/ipp