



# Humanitarian Hackathons

Can you change the world in 60 hours?

**unite innovators • impact future • act today**

A short story about problem solving,  
frustration, 3D printing houses and hopefully  
getting something right

by Hugo Day (TE-ABT/FPS)

# What is THE Port

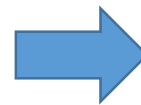
- Ports are places where lots of things and people pass through every day
- A bustling mix of people from around the globe, technology, ideas and **challenges**



A bit like CERN and Geneva...



Can we combine CERN's reputation for technical and scientific excellence with the field experience of Geneva's masses of NGOs productively?



In the best of traditions; we put our money (and time) where our mouths are!



# An idea: Pier87 - ShelterX

Mixture of competencies, backgrounds, experiences. Intentional to make sure teams don't suffer hammer-and-nail problem

Visual



Coaches for suggestions/project management

**MENTORS** – Contact and enlist people working the field to make sure we're not reinventing the wheel and to give context

Initial Challenge brief (subject to change): Often there is a need for the rapid deployment of robust and secure housing for humanitarian relief. Currently tents and temporary shelters are transported as needed but could 3D printed alternatives be used as replacements or as supplements?



What kind of shelter  
can we 3D print?

How will you  
transport it?

Will 3D  
printing help?

Do the users  
want it?

Is it cost  
effective?

Our mentors

What is shelter?

- Not just a roof
- A place you feel safe
- Temporary and permanent
- **Knowing how your loved ones are doing**
- **Knowing where you can get food, help, information**



IDEA: A place where people can get information, offer services and print it! Let local people build it! (Parts must be sourceable, cheap, not overly complicated, functional!)

Can you change the world in 60 hours? No,  
*but you can make a start*

## THE Port hackathon

- Great experience, can make a difference if you work with others!
- Different experience; defining scope of project, realistic objectives
- **ENGAGING WITH END USERS TO MEET THEIR NEEDS**
- **>8 projects still active >6 months after hackathon**
- People from 38 countries on 5 continents

### Sonification for health: the sound of movement

#### Summary:

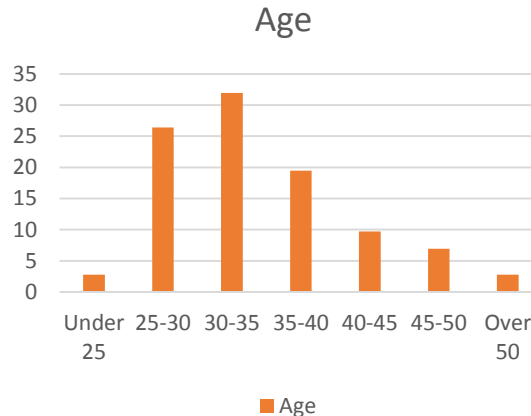
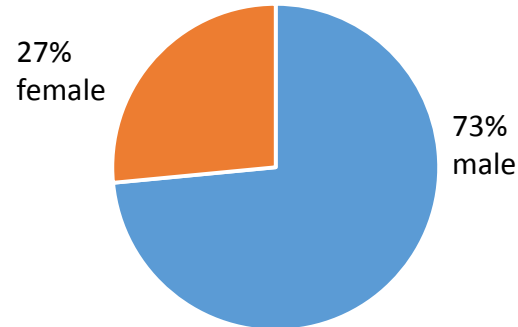
Movement is key to healthy ageing and recovery from injuries or even pathologies. Physiotherapists and practitioners prescribe exercises that take the human body through certain movements, creating certain forces. Fundamental to the expected benefits of these exercises is their precise execution, easy under the watchful eye of the physiotherapist, but difficult when alone at home. Sonification can provide real-time audio feedback, with elements of feed-forward, that provides a quantitative reference for the correct execution of movements.

#### Goals:

- The aim is to create a real-time audio feedback system to provide a quantitative reference for movements and an engaging physiotherapy tool for patients through:
- a series of wireless sensors able to measure kinetic/kinematic variables (e.g. joint angles, velocity, acceleration, force)
  - a mobile phone app, able to receive data from the wireless sensors, customise sonification parameters (e.g. music scale, instrument, music genre) and connect a network of users to practice/play together
  - a website to enable physiotherapists to prescribe and make a database of exercises, monitoring progress remotely. The website can offer social media integration (e.g. the patient can upload their sonification MP3s)

#### Resources:

Expertise in human machine interfaces, embedded electronics, wireless sensors, data sonification – interdisciplinary team including electronic engineers/physicists, mobile and web software developers, a musician and a sport science/physiotherapy expert.



# HUMANITARIAN HACKATHON

**14-16 OCTOBER 2016 @ CERN**

6 MULTIDISCIPLINARY TEAMS  
 FROM AROUND THE GLOBE  
 +  
 6 HUMANITARIAN  
 PROBLEM SOLVING CHALLENGES  
 =  
 THE PERFECT FIT FOR AN  
 UNFORGETTABLE WEEKEND



**6 WEEKS  
 PREPARATION**

**3 DAYS ON-SITE  
 PROTOTYPE DESIGN**



**APPLICATION OPEN UNTIL ~~15 JUNE 2016~~**

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*Apply anyway!*