

URBAN DEVELOPMENT AND MOBILITY



European Research Council
Established by the European Commission

The FragMent Project

Geographic environments, Daily activities & Stress



www.fragmentproject.eu

A study on stress in your daily life

Did you know that stress is a risk factor for 90% of diseases? Whether it is your neighborhood of residence or the places you visit regularly, **your daily environments contribute to fueling stress** or, on the contrary, to producing a restorative effect.

The **FragMent** project assesses how the **environments in which we live and travel**, as well as our **daily activities**, contribute to **daily and chronic stress**, and **social inequalities** in stress.

FragMent will help **policymakers, local organizations and citizens** to equitably reduce exposure to urban stressors in the public space.

What is Stress?

Stress is an emotional, behavioral, and physical response to a situation experienced as overwhelming. If this state of stress is prolonged too long or too frequently, it is called chronic stress.

We use innovative approaches to identify stress in your daily life ...



A participatory and citizen based research!

Participatory workshops with civil society, political actors and scientists

Focus group discussions with citizens about their practices and experiences of the city



A mobile survey: Your matters more than you think!

Smartphone-based survey with GPS to link the environment to the participant's perceptions and **momentary stress**

Voice recordings to identify **vocal biomarkers of stress**



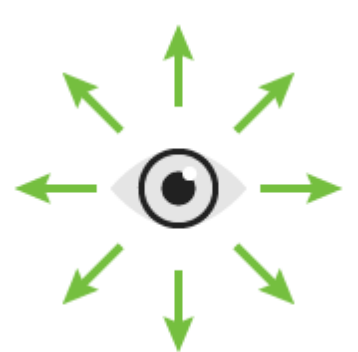
A walk in a Virtual city

Virtual Reality-based experiments simulate different environments

Manipulation of urban design characteristics in a **highly controlled & realistic environment**

Pilot: A comparaison between a virtual & a real walk in Belval !

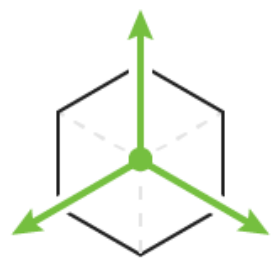
We measure subjective and physiological markers of stress



Perceptions



Heart Rate



Accelerometer

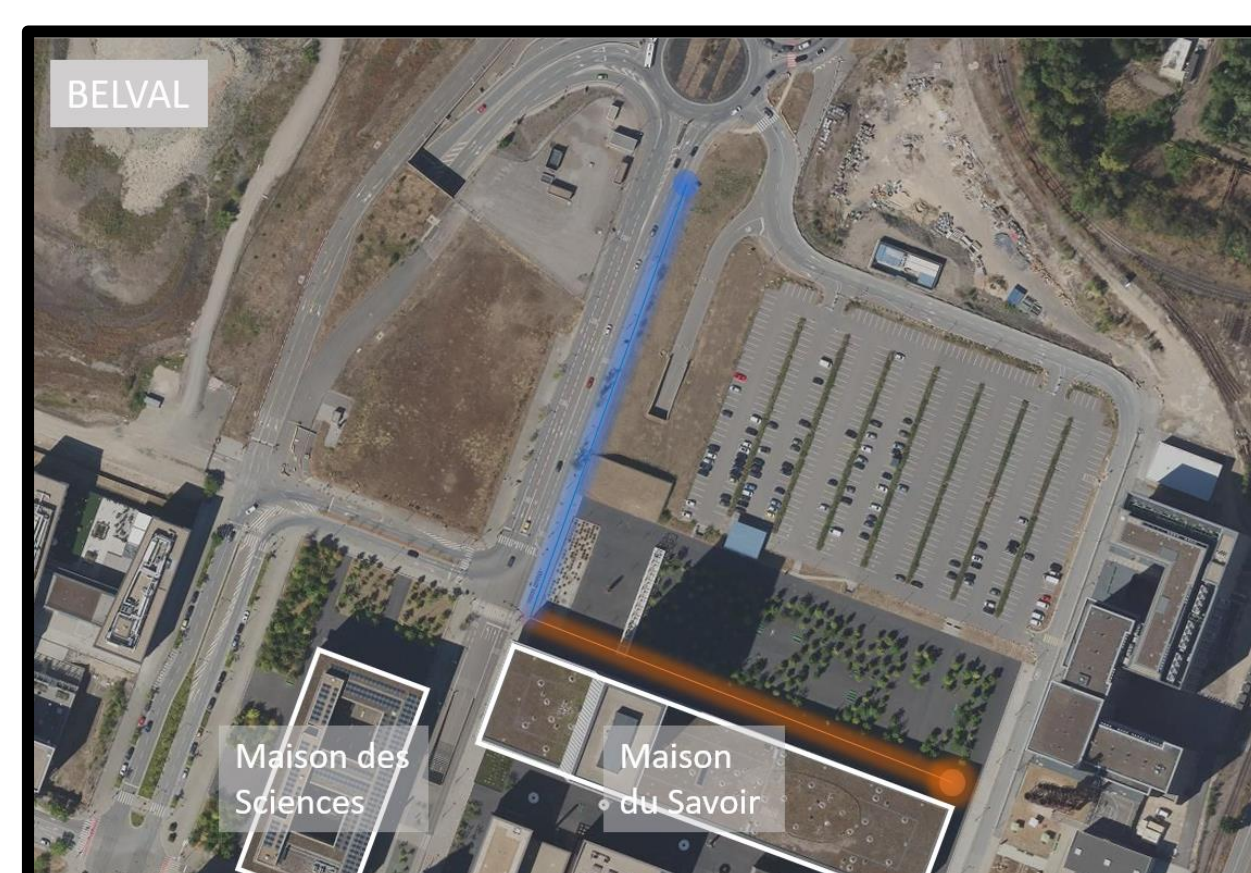


Skin temperature



Electrodermal activity

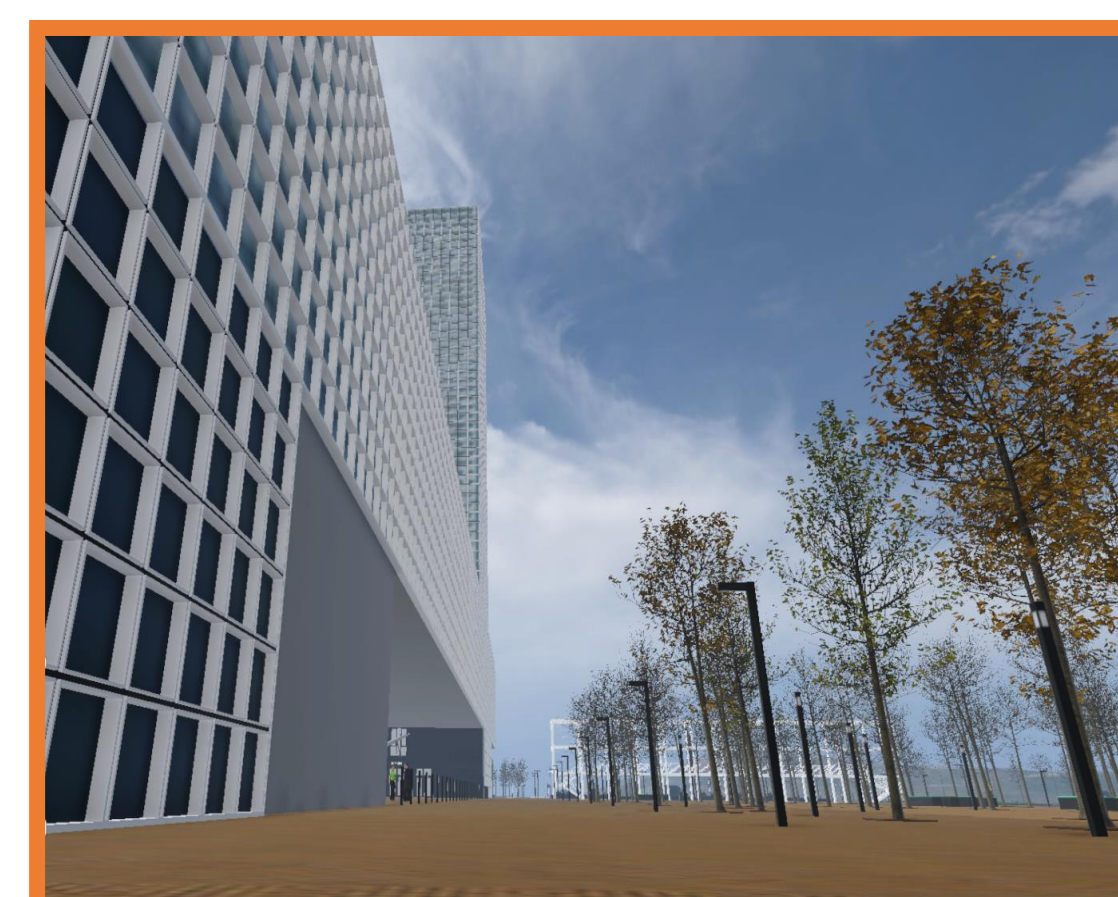
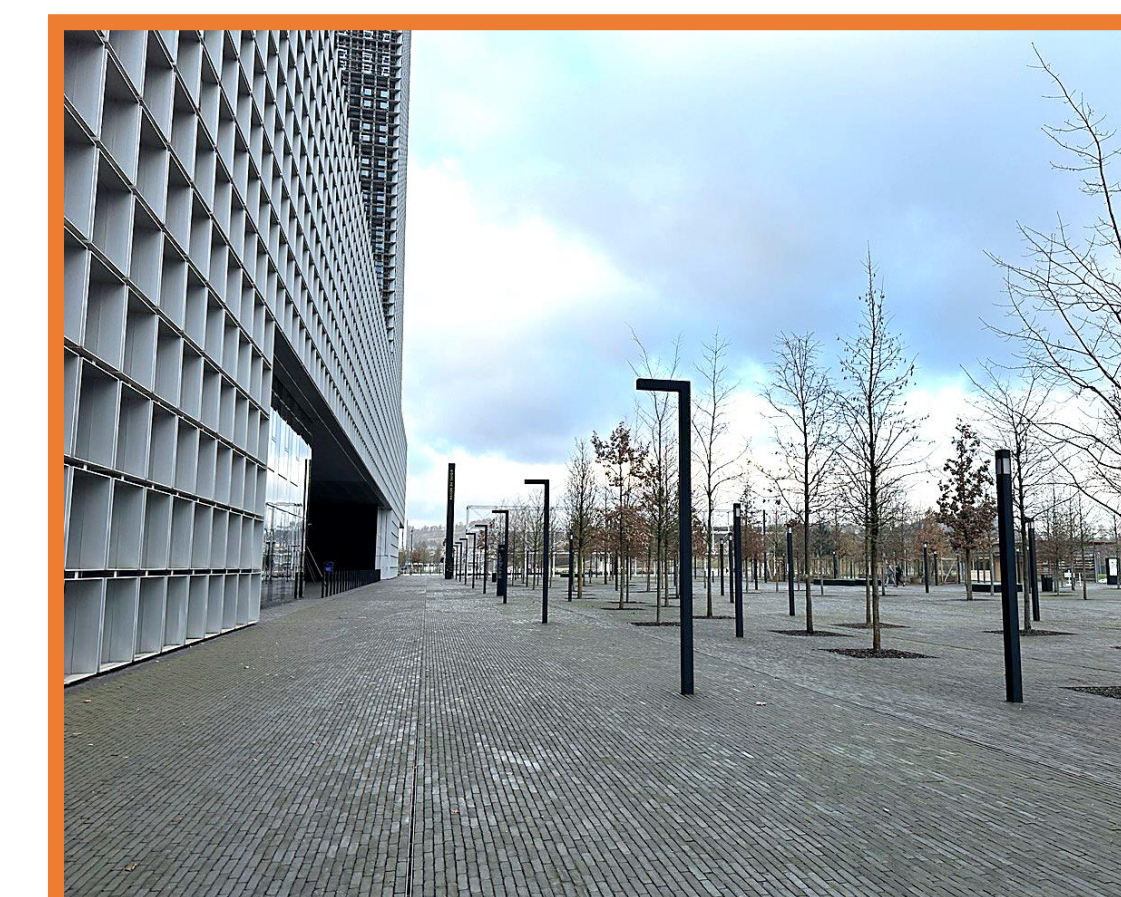
A walk in a contrasted environment



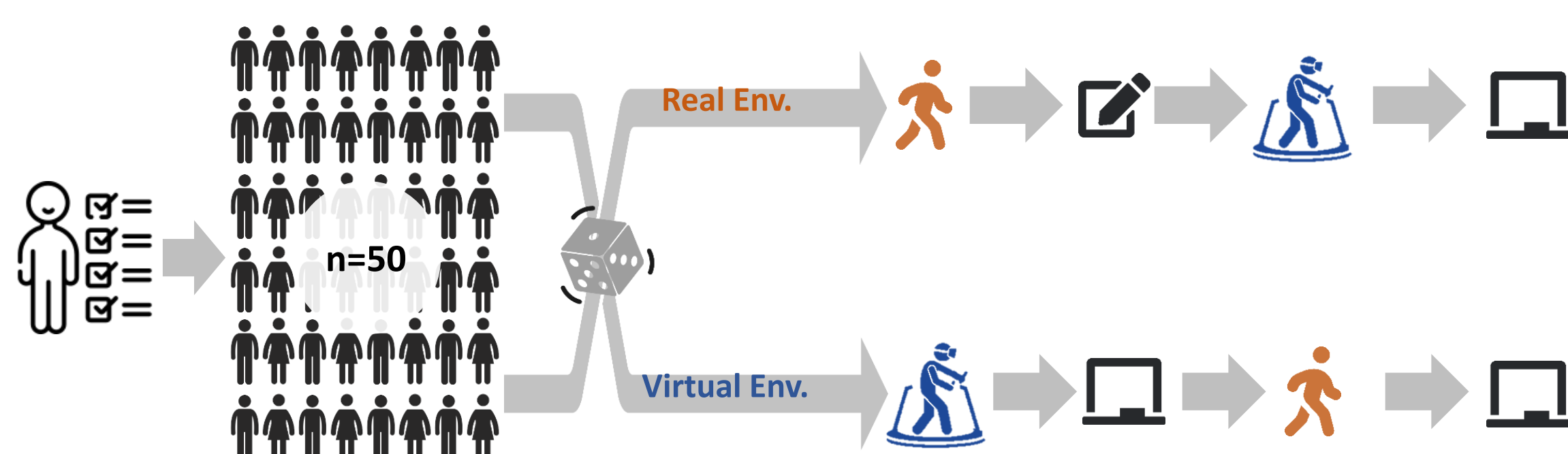
REAL



VIRTUAL



A randomized within-subject experiment



12 variations of Luxembourg: Investigating the impact of geographic environments on stress

What urban features do we manipulate ?

Greenness
Building height
Sidewalk width
Sidewalk connectivity
Street activities
Building funtion
Car traffic
Crowdedness



Each variation is a combinaison of 8 urban characteristics in a Luxembourg-like environment.

