

# Humans as Sensors to Enhance the Built Environment

A Case Study of the Eastern Harbor  
Alexandria - Egypt



DINA TAHA – BENJAMIN BERGNER – RANIA RASLAN  
HUMANS AS SENSORS TO ENHANCE THE BUILT ENVIRONMENT - MAI 16TH

**REAL CORP** 2012

# Introduction

There is general consensus that pedestrians' **sense of safety** and **comfort** within a roadway corridor is based on a complex assortment of **factors**, such as **personal safety**, architectural **interest**, pathway or sidewalk **shade**, pedestrian-scale **lighting** and **amenities**, presence of **other pedestrians**, conditions at **intersections** ... etc.



# Goal of Research

Making use of emerging **technologies** to efficiently **collect** and **visualize subjective data** of urban population concerning the **built environment**.

Pursuing the overall goal to **enhance the living conditions** in cities by **understanding the real feelings** towards the **urban surroundings**.



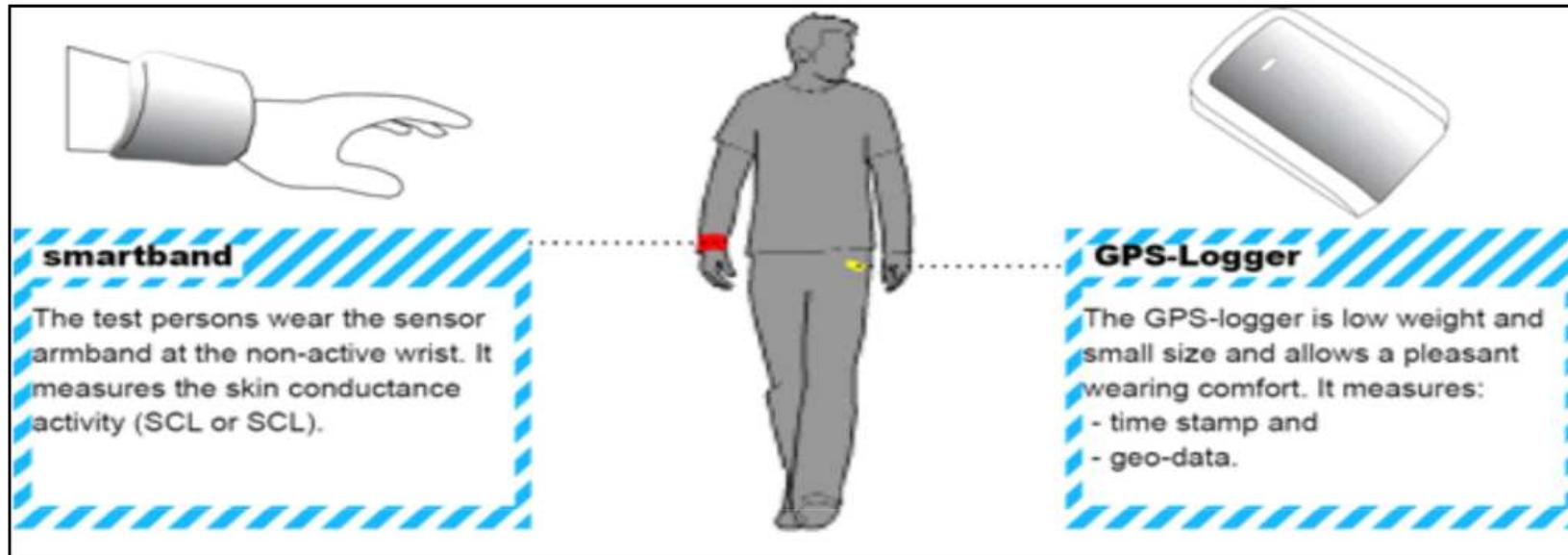
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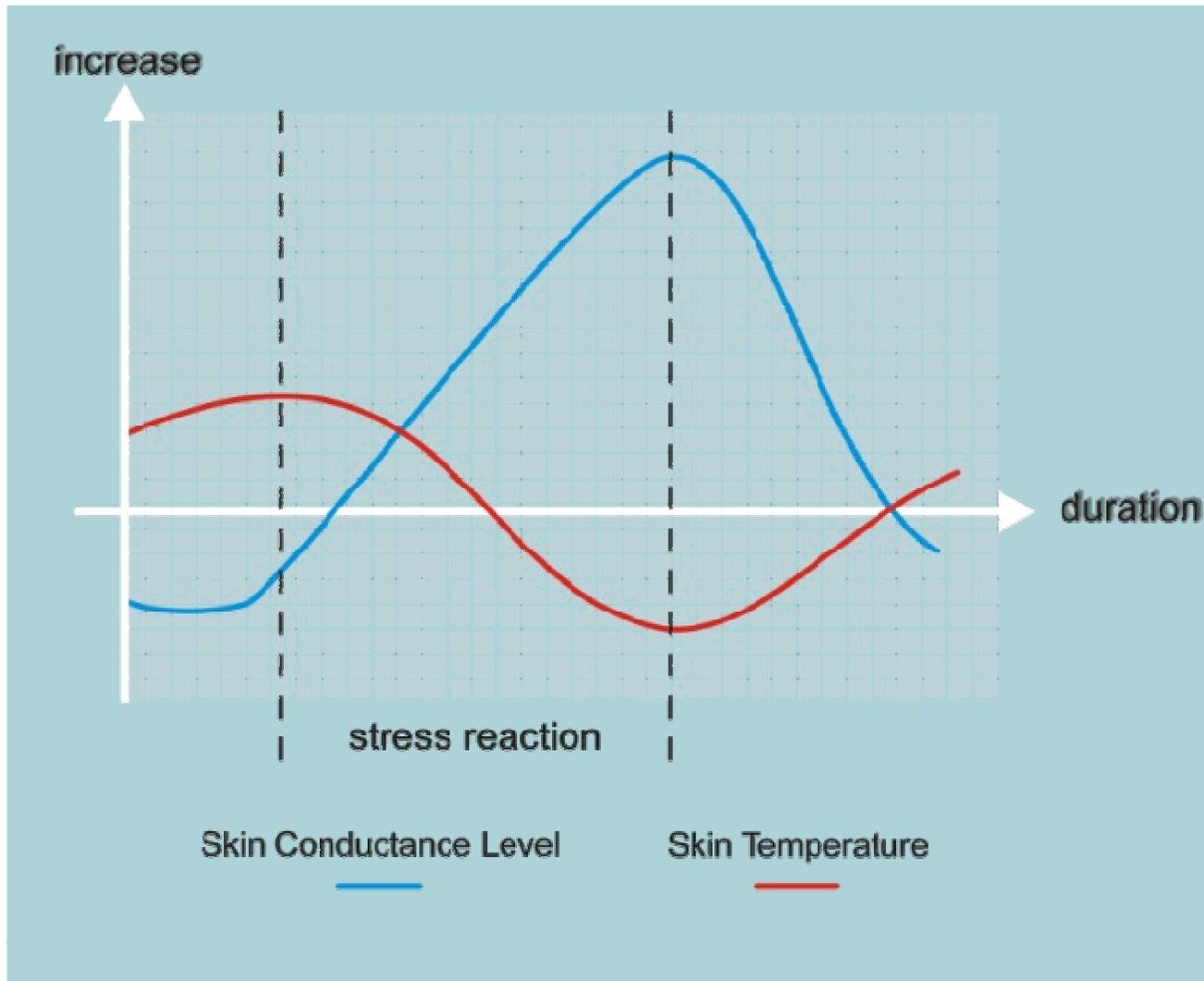
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# Emotion Measurement

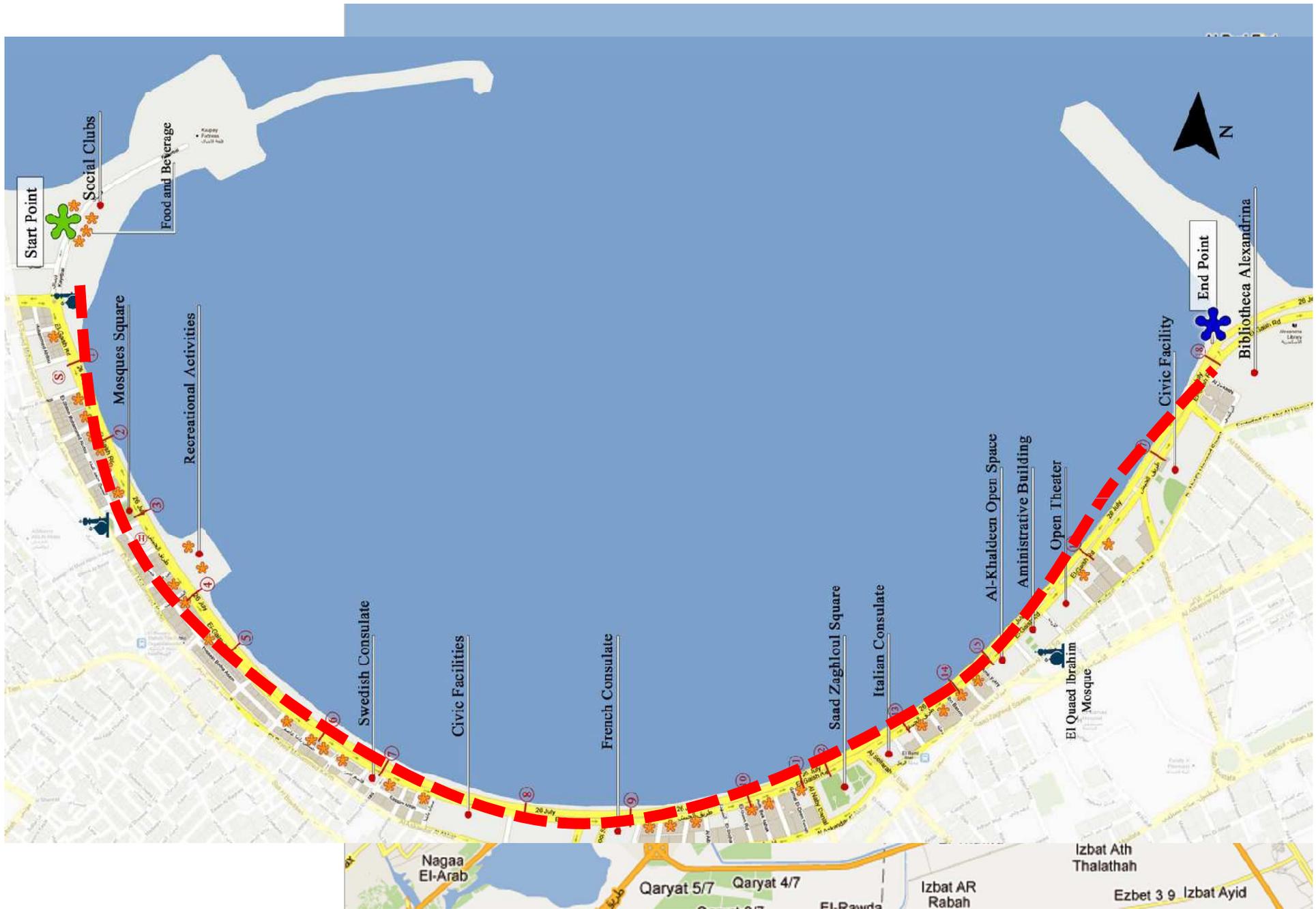


# Methodology



The **feelings** and **emotions** of the participants can be measured with the help of **psycho-physiological monitoring**. Therefore a sensor strap (SMART-Band) is used to identify the **vital data** (skin conductivity, skin temperature, etc.) of the demonstrators in real-time. This data is **synchronized** with the **GPS-position** and **video recording** to define the impact of the **built environment** on the human being.





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Thursday, November 3<sup>rd</sup> 2011 at 8:30 am



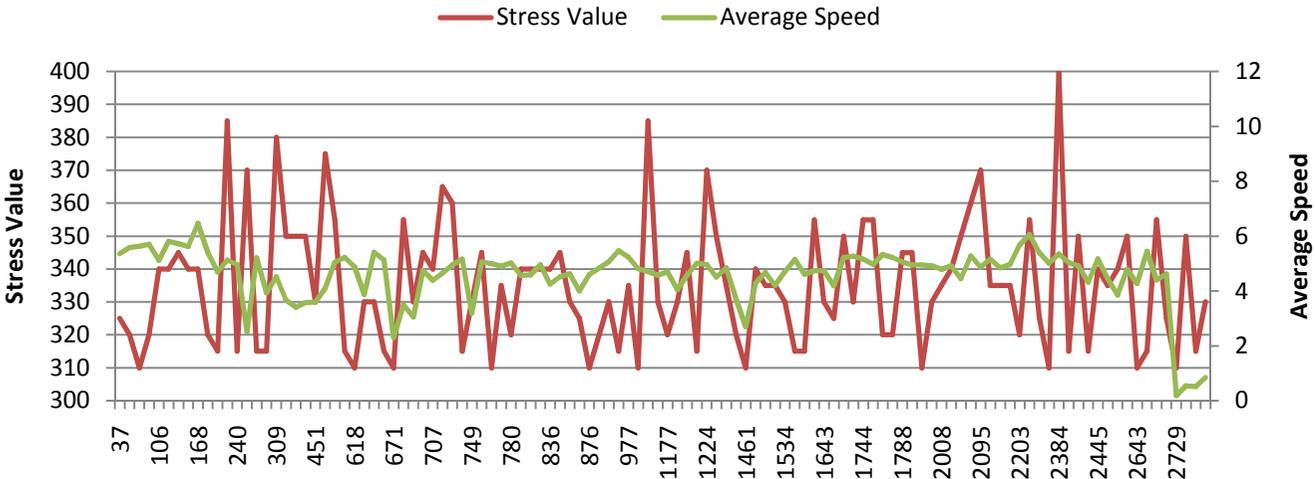
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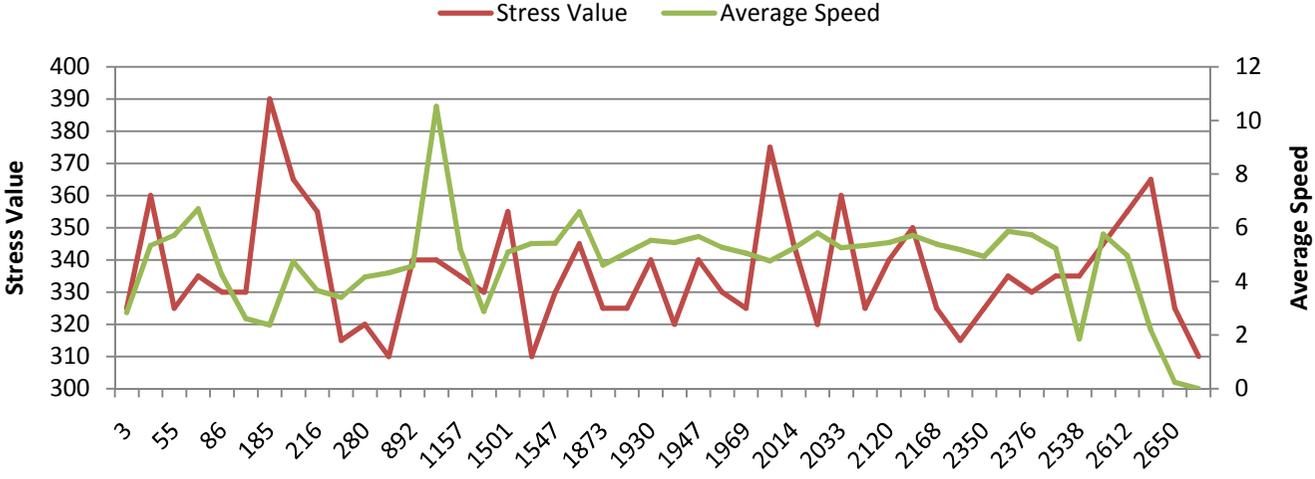
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# Findings and Analyses



**Participant A**  
 Distance: **3.87 km**  
 # Arousal Points: **112**  
 Av. Speed: **4.68km/hr**  
 Av. Speed @ Stress pt: **4.58 km/hr**



**Participant B**  
 Distance: **4.30 km**  
 # Arousal Points: **46**  
 Av. Speed: **4.81km/hr**  
 Av. Speed @ Stress pt: **4.73 km/hr**

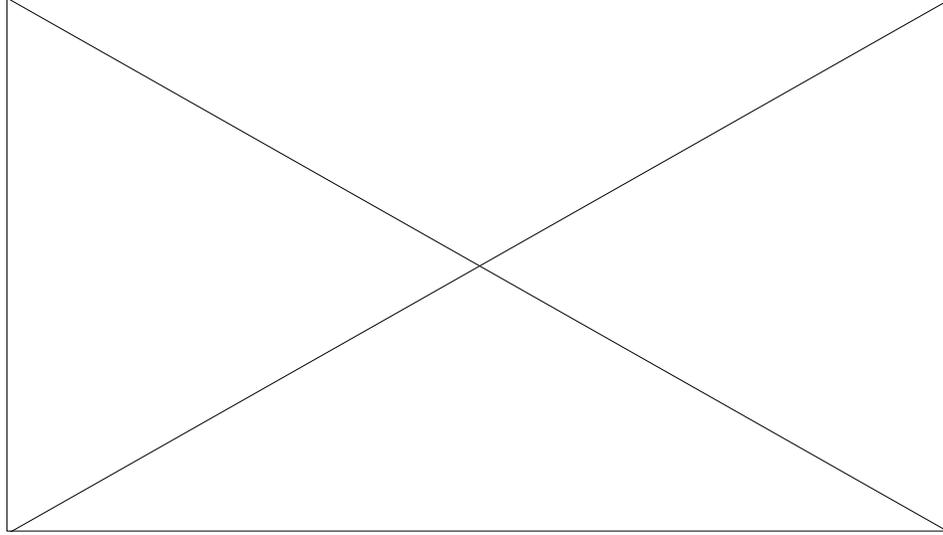


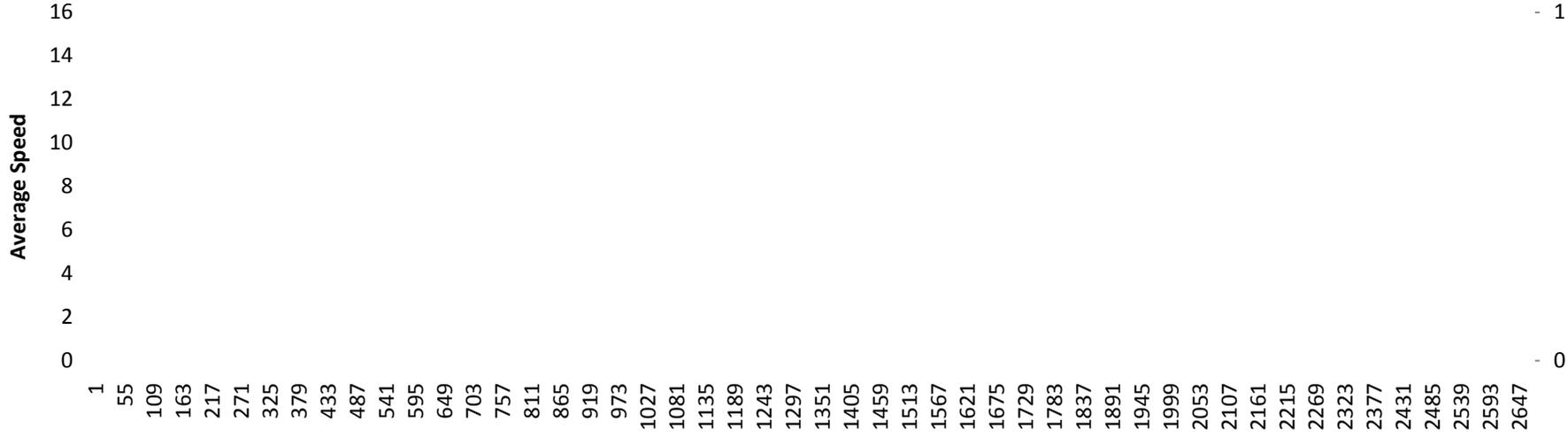
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# Neuralgic points



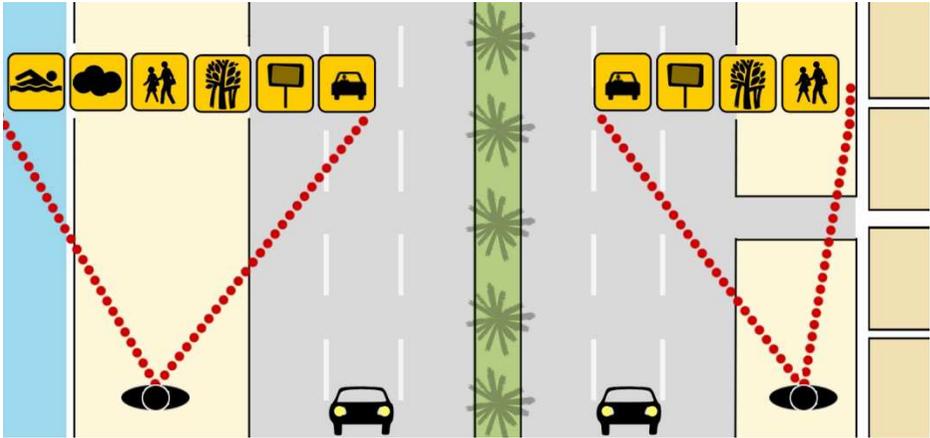
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# Discussion



# Outlook



In order to enhance our built environment, planners need to **understand** urban open spaces from the **perspective of its users**.

New technologies like **SMART-Bands** show high **potentials** in that field.

Hence, further **researches** are needed with larger **sample size** to get more **robust** data for decision makers .



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# Thank You...!

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