



# Reading Environmental Sensing Network

<http://acet.rdg.ac.uk/projects/resn/>



Gremlins in the System

## Motivation

Understanding the limits of natural resources that sustain life (such as water and soil) is vital if we are to maintain and enhance quality of life both globally and nationally.

It is crucial to have real-time environmental data when dealing with natural or human induced disasters, such as floods, prolonged droughts, hurricanes, and pollution.

There is a pressing need for reliable and cost-effective mechanisms to remotely gather environmental data on a wide-scale, continuous and non-intrusive basis.

## Wireless Sensor Networks

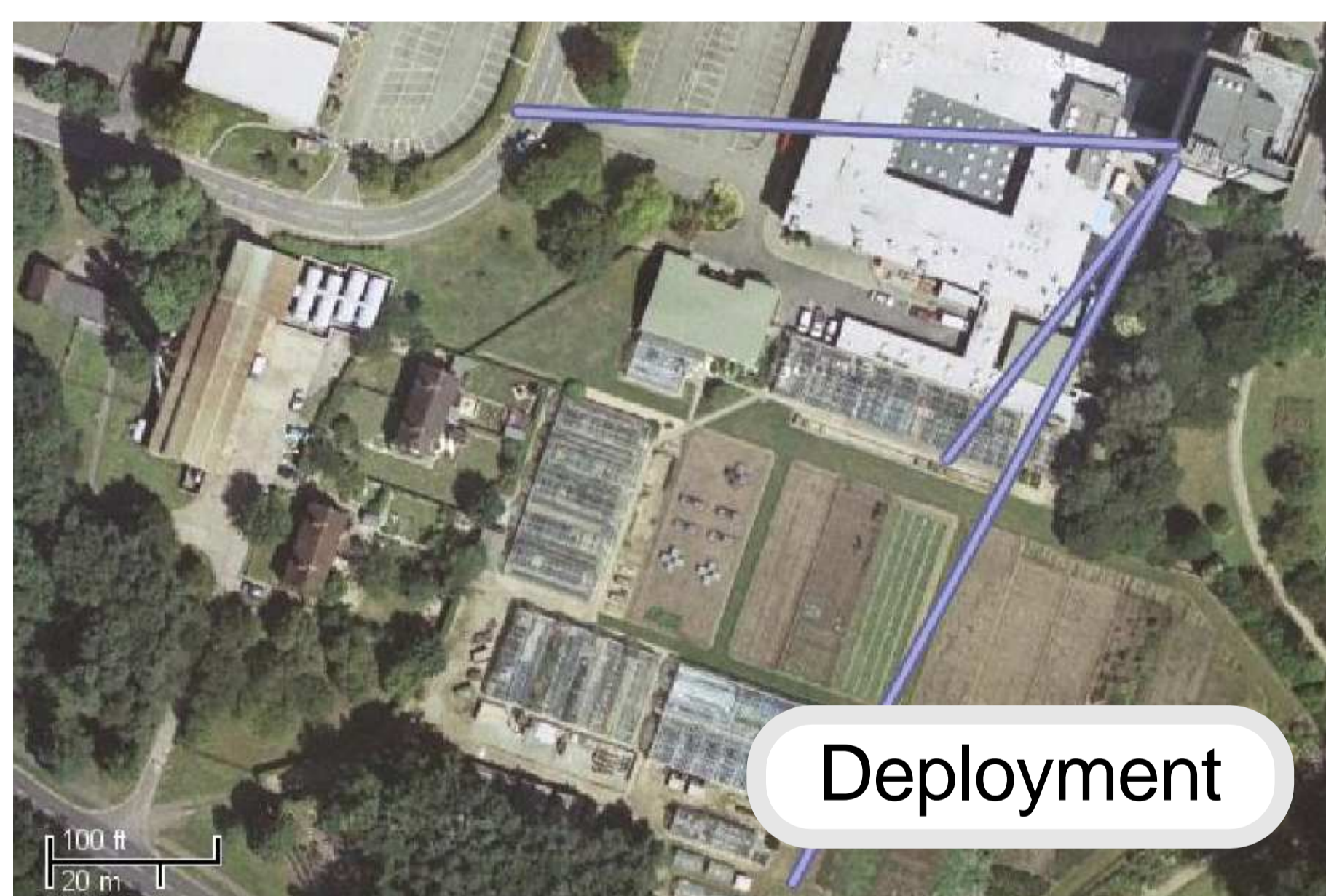
A WSN is a wireless network consisting of distributed autonomous devices (motes) using sensors to cooperatively monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants, at different locations.

Using WSN means:

- No cables are needed,
- We can monitor areas with no infrastructure,
- Flexibility for temporary or problem-solving deployments,
- We can get more data, more reliably,
- Non-intrusive.



WSN Components



Deployment

## Geographical Deployment

The RESN project is investigating the usefulness and reliability of WSNs for gathering micrometeorological data on its campus.

It is well known that the effort required to deploy long-running reliable sensing systems in the field is an order of magnitude greater than that needed to write the application itself. The aim of this work is to research and implement the best mechanisms to provide robust and reliable tools to deploy WSNs in the field.

## Outcomes

Our experience with the WSN project at Reading has been rewarding in many ways.

- It has led us to understand the advantages of using this type of equipment, and also that far more tools and services are needed to ensure that environmental scientists can easily program and use this kit.
- Currently the members of RESN are investigating and developing an Integrated Development Environment that can help with the configuration, simulation and deployment of WSN, as well as looking at ways of streamlining the processes of gathering and analysing the data produced.
- RESN is working closely with the Environment Agency, British Geological Survey and CEH-Wallingford within this research area.

