

# Sheep Lameness Detection via Wearable Sensor-Based Data Analysis

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**What is lameness?** A painful erratic movement caused by infectious bacteria that grow in the soil and can easily transfer to the sheep's foot. It results in the animal deviating from its normal gait or posture.

- Footrot is responsible for **90%** of sheep lameness in the UK due to climate changes between mild winter and wet summer.



**Research impact:** One of the major health and welfare concerns for the sheep industry in the UK is **lameness** that leads to a huge economic problem and causes a reduction in overall farm productivity.

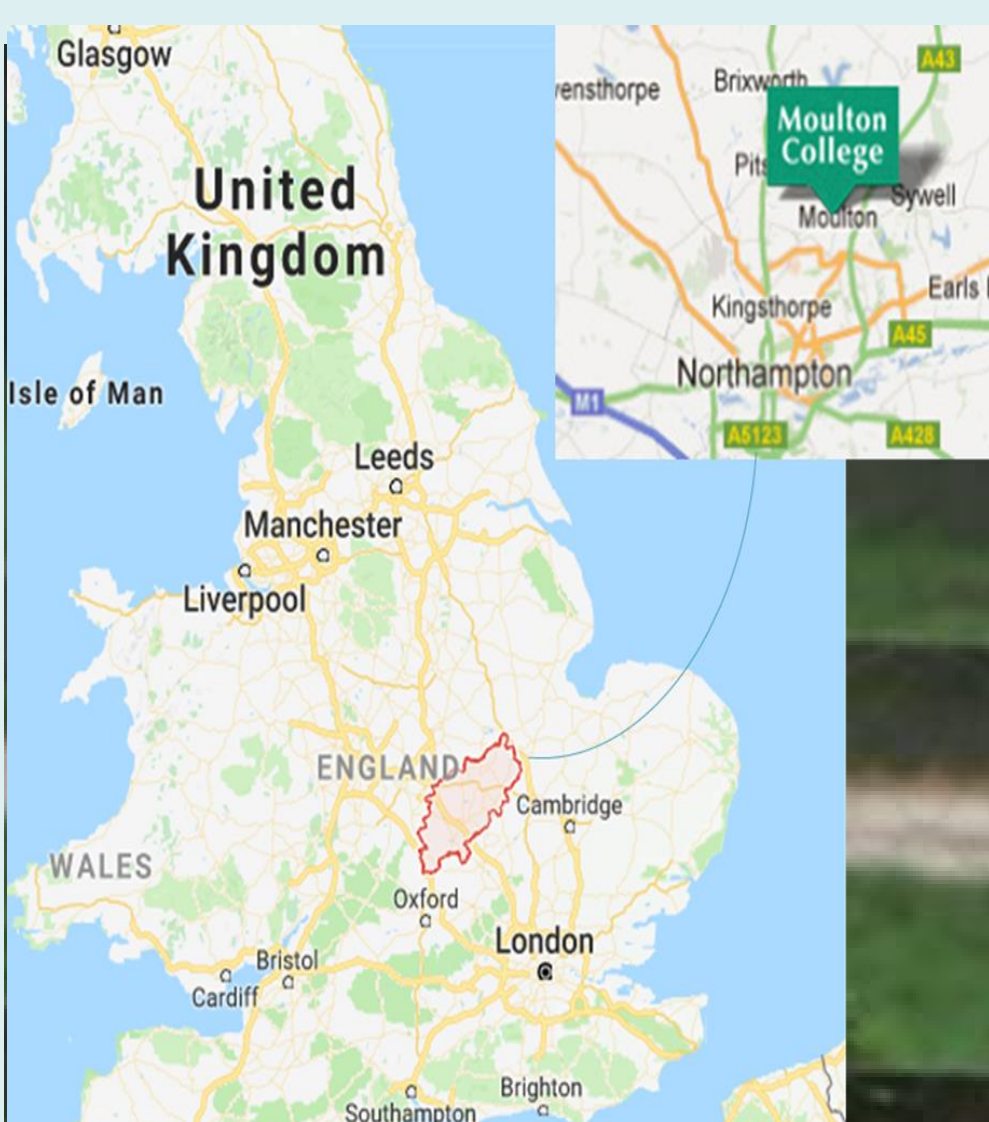


AHDB estimated the annual loss to the British sheep industry to be **£10** for each ewe (for footrot alone) in 2016.

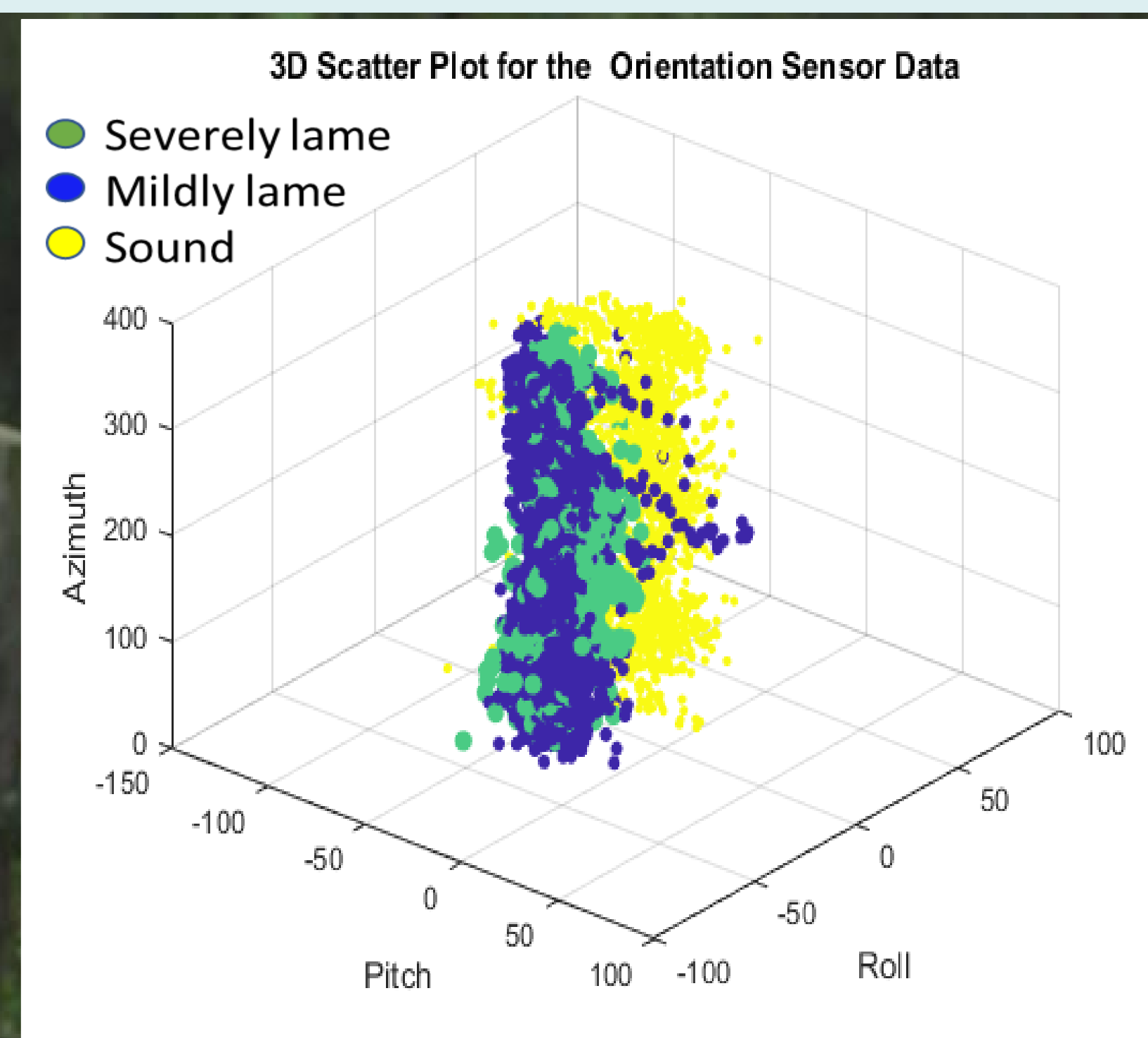
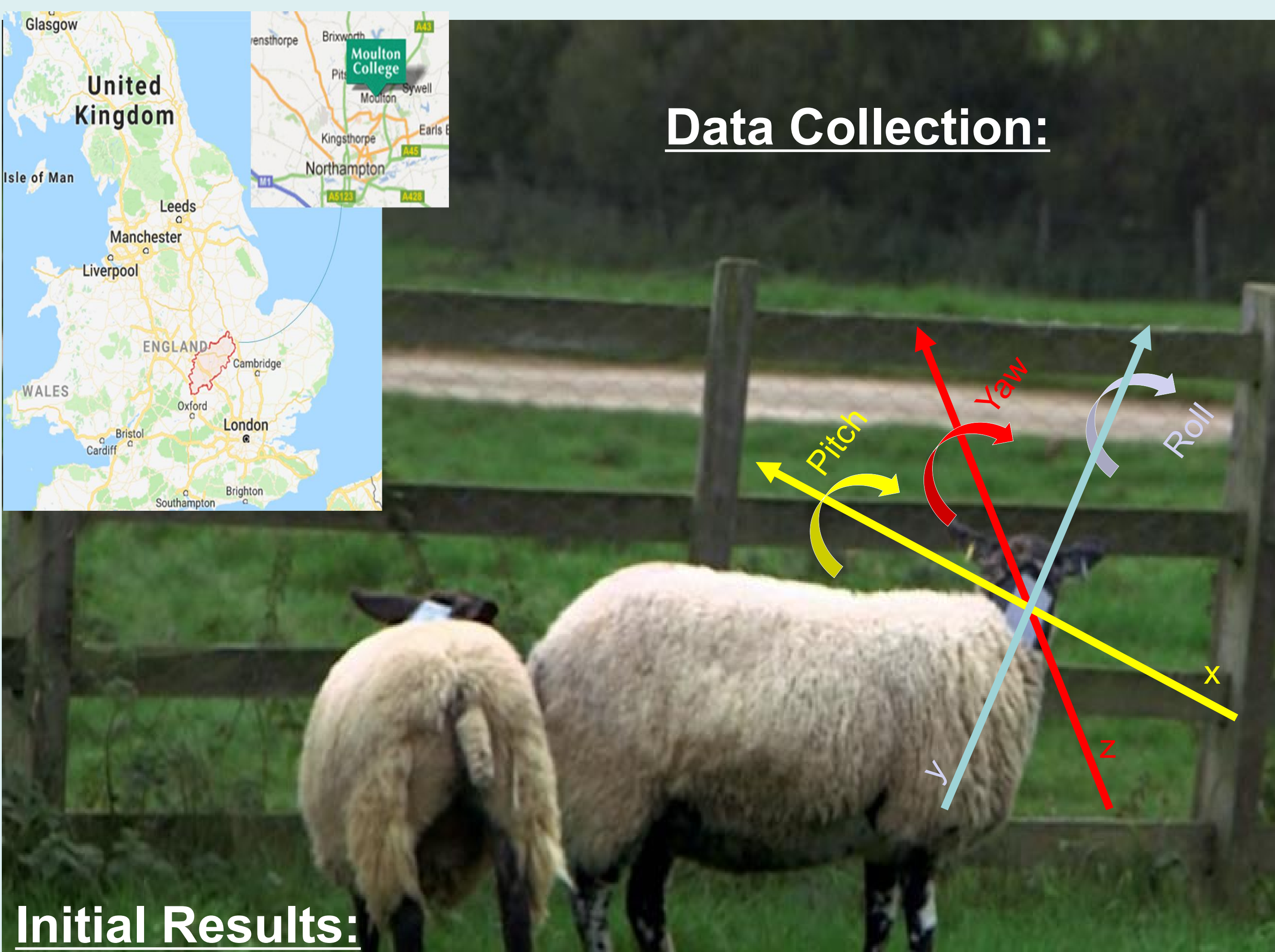


ADAS reported that each lame ewe costed **£89.80** in 2013.

**Research aim:** Utilising sensor devices to detect the early signs of lameness by collecting the movement measurements of the mounted sensor around the sheep's neck. The collected data were analysed to classify the sheep into the lame and sound classes via machine learning approaches.



## Data Collection:



## Methodology:

Divide the raw data into **Train set & Data set**

Build a classification model (decision tree) using Train data set

Evaluate the build model using the Test data set

## Conclusion:

The Decision Tree classifier can identify lame from non-lame sheep by depending on the Roll angle measurements of y-axis.

## Initial Results:

Test Accuracy for the Orientation data

