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TBD: A tool to study microclimates in an orchard

By

Adam Sidnell

Supervised by Professor Ruzanna Chitchyan

Department of Computer Science
UNIVERSITY OF BRISTOL

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Executive Summary

Dedication and Acknowledgments

Author's Declaration

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1 Introduction

1.1 TODO: Add intro

2 Background

2.1 Microclimates: definition and relevance

A microclimate is generally understood as a set of distinct climatic conditions that are distinct to a small, localised area [1]. The maximum size of a microclimate is debated, but the World Meteorological Organisation (WMO) regards it as occupying an area of anywhere from less than one metre across to several hundred meters [2]. In practice, microclimates can occur in spaces such as gardens, valleys, caves, or fields. Even human-made structures can generate their own microclimates; for example, tall buildings can create *street valleys* that reduce wind flow and lead to the formation of localized pockets of warmer air, which can also trap higher concentrations of pollution from vehicle emissions [3]. Vegetation plays a critical role in influencing microclimates. The addition of trees to an urban environment can reduce air temperature by as much as 2.8 °C [4].

2.2 Microclimates in apple orchards

2.3 Smart farming

2.4 *Internet of things* and sensor networks

References

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