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**Instrumentation System for Liquid
Drop Impact and Evaporation
8 pages MAX**

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Abstract

This document gives some ideas about how to write a project proposal, and provides a template for a proposal. You should discuss your proposal with your supervisor.

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1 Introduction

2 The Problem

This project is concerned with the development of a instrumentation rig for the study of droplet impact and drying. It is primarily/initially motivated by the powdered milk production process, specifically the behaviour of the drying and collision of concentrated milk droplets. Furthermore, the research, and developed method and procedure can be applicable to various industries.

To effectively investigate the behaviour, a variety of aspects can be tracked and characterised during a microscale equivalent lab process, from differing temperatures, substrates, volume, and concentrations.

Currently there is an existing platform for the dispensing of droplets and data capture using high speed cameras and other various sensors. It

This project will therefore, focus on the design and evaluation of the third generation of this platform with the aim to design and integrate various new subsystems and evaluate their performance against the criteria of improving the reliability and repeatability of the experiments as much as possible.

3 Proposed Solution

Evaluate current systems results and identify its short comings. Produce evaluation data and bibliography (est. x wks)

- Repeatability of [Drop position,Drop volume (size),Contact angle] and correlate and/or see how the variation in these parameters effects the observed temperature profile and physical behaviours of the droplet throughout the evaporation process.
- Identify other sources of variation, such as humidity etc and their weight of influence (whether perusing a solution is worthwhile)
- Compare with similar solutions in literature to gain more insight into required design consideration and constraints.

3.1 Milestones

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Gantt Chart

Task Name	Q1 2019			Q2 2019		Q3 2019
	Jan 19	Feb 19	Mar 19	Apr 19	Jun 19	Jul 19
Planning						
Research						
Design						
Implementation						
Follow up						

Figure 1: Example Gantt Chart filler, will be replaced with actual timeline

3.2 Timeline

4 Evaluating your Solution

5 Resource Requirements

5.1 Facilities and Tools

- Labs AM219 and LB207
- Computer with SolidWorks, LabView, *other data processing tools*
- Electronics Test bench (PSU, signal gen, scope etc)
- Access to fab workshop

5.2 Budget

5.3 COVID Alert Level Management

Level and planned work that can be achieved and undertaken at the various levels.

Level 1

Level 2

Level 3

Level 4

Bibliography