TWITHERING-TRACKER:
TEA WITHERING PROCESS TIME PREDICTION

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A dissertation submitted in partial fulfilment of the requirement for
Bachelor of Engineering (Honours) degree in Software Engineering

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in collaboration with
University of Westminster, UK

2021

Abstract

Tea is the second most famous beverage of the world which is widely used. Compared to other crops, tea industry is one of the prominent industries in Sri Lankan Economy. Tea manufacturing has lots of inside processes such as rolling, withering, fermentation and drying. Process of withering and drying mostly depend to the quality and taste of tea. Determining time spent for the entire withering is a huge challenge since it is usually detected by human experiences or sensory details. Considering the technological enhancement in software development, tracking the withering process and estimating the exact time of withering process is an important need for tea industry to reduce cost and time to exceed the expected profits. So, the dissertation focused on designing a solution to address this above problem.

The researcher's intention is to propose a system that can easily track the process of withering from start to end with a machine learning approach. The system was tested with multiple algorithms both in machine learning and deep learning. The proposed system, *Twithering-tracker* consists with a novel design and program to be worked in industry level. The predictions are generated using very few amounts of input factors which mostly impactable. So, the end users can easily use the system with a minimal effort. Moreover, the proposed system is acted as decision-making system to achieve maximum benefits.

The dissertation includes all the findings identified using different approaches. It would be a great contribution since the domain is an untouched area. Furthermore, the dataset used for the implementation can be also taken as a contribution since it was freshly collected by the researcher only for this research purpose. After the final marking phase, the source code, developed model, summary of findings and freshly collected dataset will be published in an open-source medium.

Keywords: Tea Withering Time Prediction, Machine Learning, Time Series Prediction, Auto ML