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GDD(Growth Degree Day) Module for VinSense Visual Analytics System

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Limited resources and increasing costs require vineyards to develop optimized methods of planting, growing, and harvesting crops in order to ensure max yield and stay competitive in the marketplace. Data from sensors planted within the soil paired with weather reports and observation data from farmers could help develop competitive farming strategies. While automatic computation models are usually a black box that cannot explain how the input data are transformed into output, the farmers require an approach that allows them to interactively manipulate and supervise the computation process. The VinSense project was developed for this purpose. In this paper, we focus on a particular visual analytics module in Vinsense: GDD(Growth Degree Day) prediction module. GDD is calculated based on the aggregated temperature value and can be used to predict different events such as bud breaking and optimal harvesting point. This module not only integrates several prediction algorithms, but also allows farmers to interactively load data of interest and label multiple events for prediction. We use a few case studies to demonstrate the effectiveness of this visual interface.

KEYWORDS

GDD, Data Visualization, Viticulture