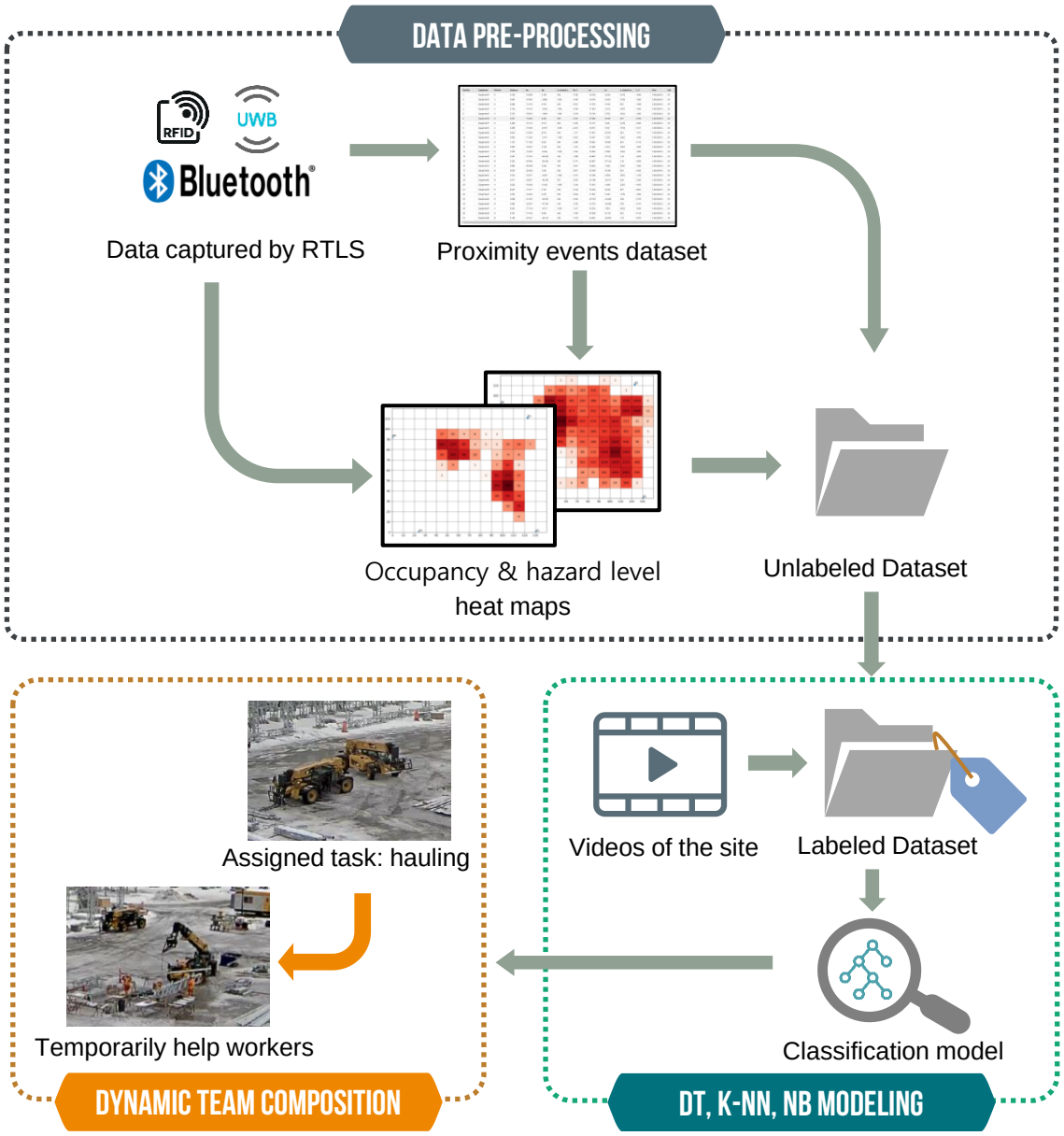
PREDICTION OF TEAM COMPOSITION

MAKE THE CONSTRUCTION SITE SAFER AND MORE PRODUCTIVE



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INTRODUCTION

The team composition on construction site can be important information. Here, with the position data of workers and equipment collected by a RTLS on a construction site in Montreal, an analytic is conducted, trying to identify the dynamic team composition.

ABOUT DYNAMIC TEAM COMPOSITION

Identifying the dynamic team composition provide possibilities to improve construction management:

- Reducing unnecessary proximity alerts
- Realistic construction safety reports
- Better construction resources allocation
- etc.

However, with traditional supervisions, the temporary changes of team composition on construction site are hard to be identified.

HOW IT WORKS?

Videos of the site are used as ground truth for labeling datasets and validation. Classification models (i.e., KNN, NB, DT) are built with the positioning data collected from RTLS. The classification model can identify whether the worker and equipment are in the same team during a proximity event with the following attributes: occupancy level, hazard level of the area, velocity of the entities, assigned tasks of the entities, type of equipment, etc.

OUTCOMES

The built classification models in this project can make estimation to the dynamic team composition between workers and equipment with more than 85% accuracy, which prove that dynamic team composition identification with Big Data analytics and RTLS are applicable and promising