Fuels3D is a smart-phone app coupled with photogrammetry and computer vision techniques to produce 3D point clouds of the environment from which fuel hazard metrics are derived. Fuels3D supplements existing visual assessments with repeatable and quantitative estimates of surface and near-surface fuel. Trials are currently underway with end-user agencies across Victoria, South Australia and ACT.

**ESTIMATING FUEL HAZARD WITH FUELS3D**

Assessment of vegetation attributes that are used to calculate hazard rating of a plot is achieved visually. Visual assessments such as these provide only qualitative information on some metrics and have been demonstrated within the literature to be subjective, meaning assessments are often not repeatable.

The Fuels3D app (Figure 1) has been developed to provide a low cost, and repeatable method to collect fuel hazard information.

**SAMPLING WITH FUELS3D**

Fuels3D fuel hazard assessment is performed by photographing a sample transect using the Fuels3D smart phone application.

6 Fuels3D target markers are set up approximately 2m apart in a straight line creating a transect (Figure 2).

**DATA PROCESSING**

The upload solution for Fuels3D involves transferring the output from the smart phone to a Cloudstor account. The data is then processed using a combination of Agisoft PhotoScan and inhouse software to produce a 3D representation of the fuel conditions (Figure 3). This method allows vegetation attributes such as height, structure and proportion live/dead to be accurately measured and reported to the collector.

At CFA we are excited about the potential of the Fuels3D app. This research will allow us to quickly determine fuel hazard in a more objective and repeatable way, with a technology that is readily available to all of our members. RMIT have involved CFA throughout the project to ensure end user needs are incorporated to support future research utilisation.

- Rachel Bessell Acting Manager, Bushfire Research and Development.

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