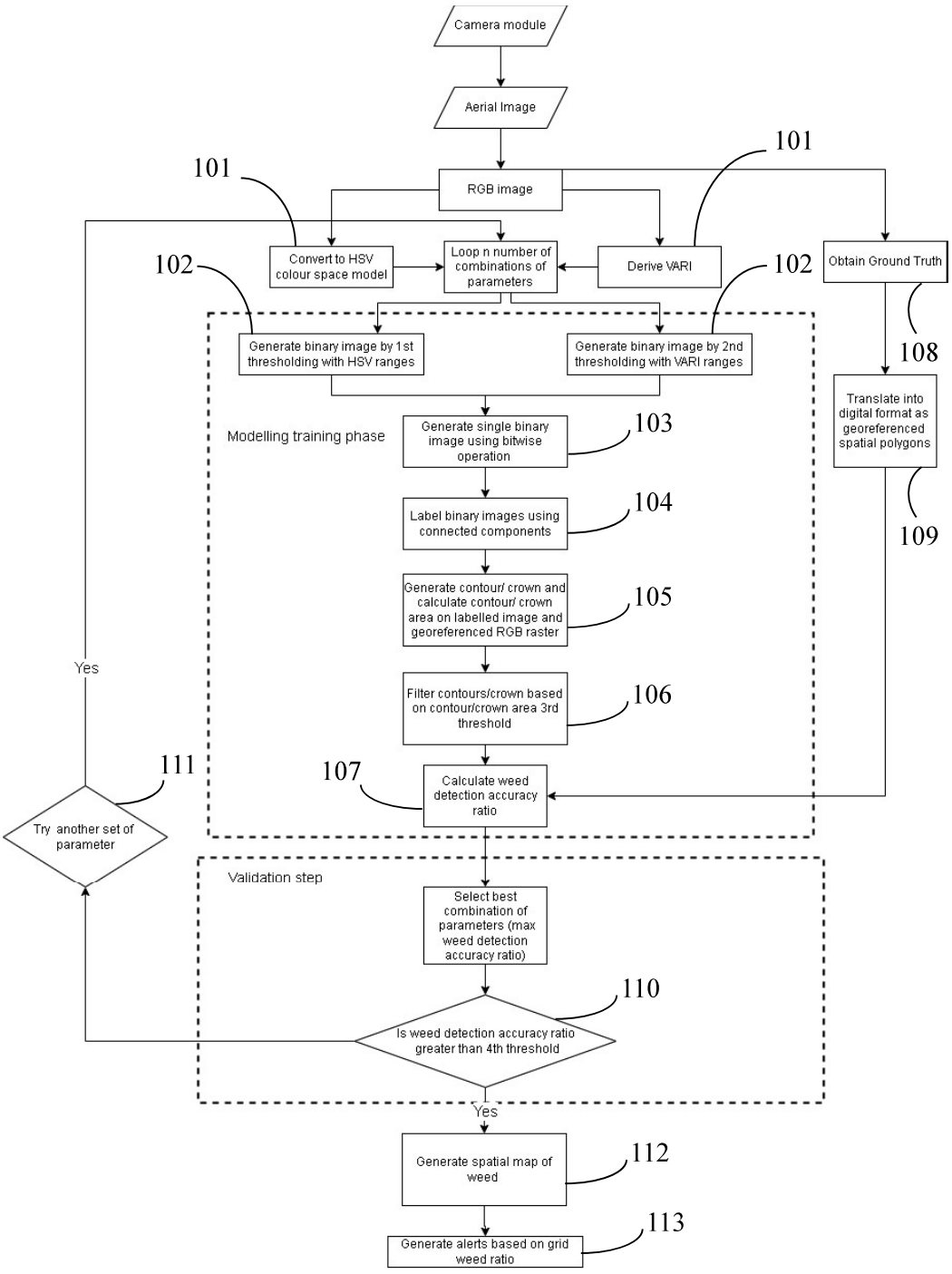

Camera module
Aerial Image
RGB image
101
101
Convert to HSV colour space model
Loop n number of combinations of parameters
Derive VARI
102
102
Obtain Ground Truth
Generate binary image by 1st thresholding with HSV ranges
Generate binary image by 2nd thresholding with VARI ranges
108
Translate into digital format as georeferenced spatial polygons
Modelling training phase
Generate single binary image using bitwise operation
103
Label binary images using connected components
104
109
Generate contour/ crown and calculate contour/ crown area on labelled image and georeferenced RGB raster
105
Yes
Filter contours/crown based on contour/crown area 3rd threshold
106
111
107
Calculate weed detection accuracy ratio
Try another set of parameter
Validation step
Select best combination of parameters (max weed detection accuracy ratio)
110
Is weed detection accuracy ratio greater than 4th threshold
Yes
Generate spatial map of weed
112
Generate alerts based on grid weed ratio
113

Fig. 1

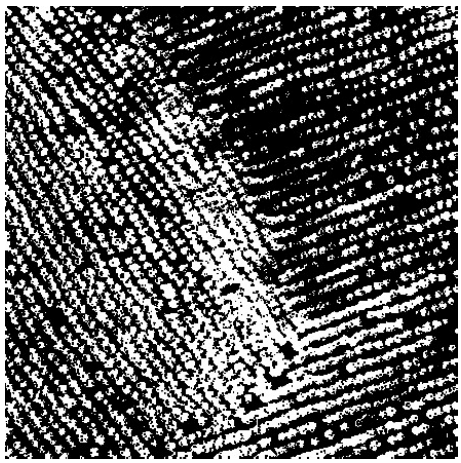


Fig. 2

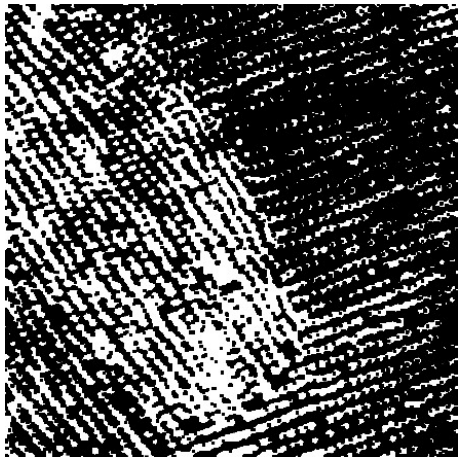


Fig. 3

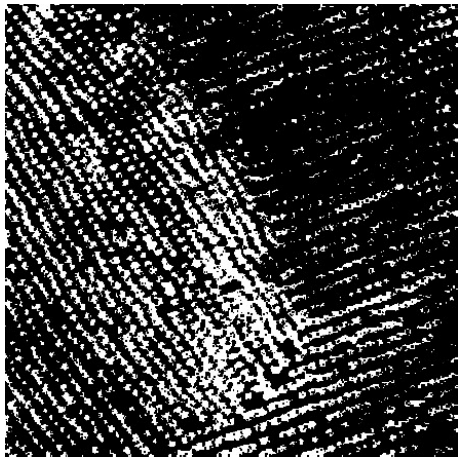


Fig. 4

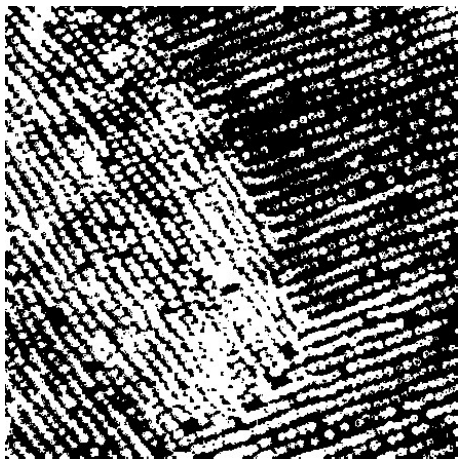


Fig. 5

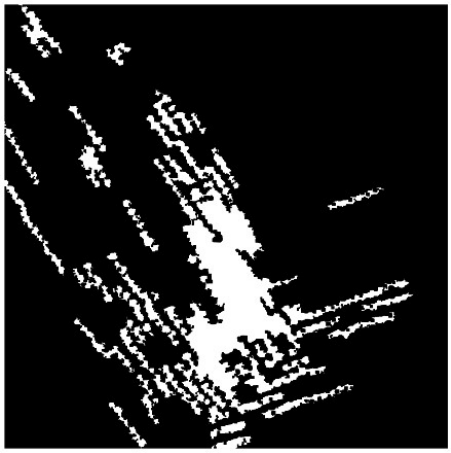


Fig. 6

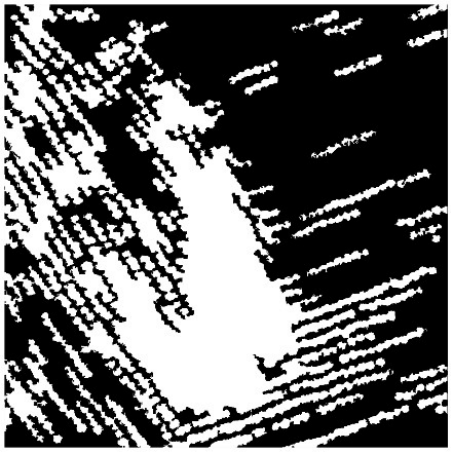


Fig. 7

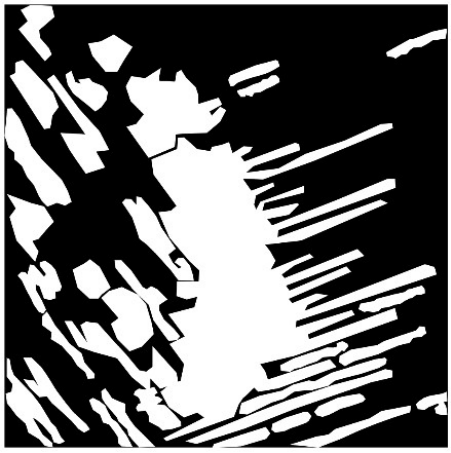


Fig. 8