CLAIMS

1. A computer-implemented method (100) for determining seedling quality and stress properties, the method (100) comprising the steps of:

acquiring soil (101) and ambient environment conditions (102) data of a location, where the seedling is planted, from one or more sensor modules;

generating a time sequence (110) based on the soil (101) and ambient environment conditions (102) data for image capturing;

triggering an image capturing device to capture one or more images of the seedling(120) based on the generated time sequence;

processing the captured images (130) to obtain parameters information of the seedling;

applying a classification model to classify quality property of the seedling (140) based on the parameters information; and

applying a plant stress model to determine stress property of the seedling (150) based on the classified quality property of the seedling;

wherein the time sequence is generated (110) by the steps of:

computing a time delay (112) based on the soil (101) and ambient environment conditions (102) data;

obtaining an averaged time delay (114) by averaging the computed time delay with a pre-defined time delay (113), in which the averaged time delay causes the image capturing device to be triggered to capture the one or more images of the seedling after the averaged time delay; and

generating the time sequence (110) based on the averaged time delay.

2. The computer-implemented method (100) according to claim 1, wherein the captured images are processed (130) by the steps of:

converting the captured images into an initial set of raw data;

measuring parameters information of the seedling (131) based on the initial set of raw data;

extracting the measured parameters information (132) by one or more feature extraction techniques; and

isolating different organ parts of the seedling (133) by an instance segmentation technique based on the extracted parameters information.

3. The computer-implemented method (100) according to claim 1, wherein the classification model comprises the steps of:

comparing the measured parameters information of each organ part of the seedling with a trained data set to determine a health index of each organ part;

determine an overall health index representing an overall seedling quality based on the health index of each organ part; and

updating the determined overall health index to a training database.

4. The computer-implemented method (100) according to claim 3, wherein the plant stress model comprises the steps of:

obtaining timeseries data (151) of the soil (101) and ambient environment conditions (102) from the training database;

splitting the timeseries data of the soil (101) and ambient environment conditions (102) from an original data set;

applying a non-linear regression technique (152) to determine a data trend model (153) which fits the timeseries data of the soil (101) and ambient environment conditions (102);

applying a pattern detection technique (154) on the data trend model to determine a number of anomalies; and

comparing the number of anomalies with a pre-determined threshold value (155) to determine the stress property of the seedling.

5. The computer-implemented method (100) according to claim 1, wherein the quality

and stress properties of the seedling are compared with pre-defined references (160) to determine whether to dispose (170) the seedling or to continue for cultivation in a plantation (180).

6. The computer-implemented method (100) according to any one of claims 1 to 5, wherein the captured images are displayed with a bounding box generated for each organ part of the seedling, whereby each bounding box comprises a float representation of the quality and stress properties of the respective organ part of the seedling.