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); 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.