CLAIMS

1. A method for inspecting goods comprising the steps of:

obtaining a transmission image and a HSCODE of inspected goods;

processing the transmission image to obtain a region of interest;

retrieving from a model library a model created based on the HSCODE, in accordance with the HSCODE of the inspected goods; and

determining whether there are any goods not registered in a customs declaration that are contained in the region of interest based on the model,

wherein each template in the model comprises a feature vector, and

when the number of templates in the model is smaller than a predetermined number, a feature vector of a new sample is recorded directly as a template, or when the number of templates in the model reaches the predetermined number, a feature vector of a new sample that matches the model is not used as a template, and a weight of the template having the highest similarity with the sample is increased, or when a feature vector of a new sample does not match any template in the model, the template having the lowest weight is replaced with the feature vector of the new sample.

2. The method of claim 1, wherein the step of processing the transmission image to obtain the region of interest comprises:

applying a supervised image segmentation to the transmission image, with a category of goods represented by the HSCODE of the inspected goods as a supervision value, to obtain at least one segmented region as the region of interest.

3. The method of claim 2, wherein the step of determining whether there are any goods not registered in the customs declaration that are contained in the region of interest based on the model comprises:

obtaining a texture description of each segmented region by applying a feature extraction to the segmented region, so as to form a feature vector;

determining whether a similarity between the feature vector of each segmented region and respective templates included in the model is larger than a threshold; and

determining that there are goods not registered in the customs declaration that are contained in the inspected goods when the similarity between the feature vector of at least one segmented region and the respective templates included in the model is not larger than the threshold.

4. The method of claim 3, wherein the step of retrieving from the model library the model created based on the HSCODE in accordance with the HSCODE of the inspected goods comprises:

retrieving, from a local model library and/or a cloud model library, all models corresponding to front predetermined bits of the HSCODE.

5. The method of claim 4, further comprising the steps of:

sorting the retrieved models in an order;

determining whether there are any goods not registered in the customs declaration that are contained in the region of interest in the order; and

determining that there are goods not registered in the customs declaration that are contained in the inspected goods when the similarity between the feature vector of at least one segmented region and the templates of at least one of the models is not larger than the threshold.

6. The method of claim 3, further comprising the steps of: updating all models corresponding to front predetermined bits of the HSCODE in a local model library and/or a cloud model library.

7. The method of claim 3, further comprising the steps of:

performing local region sampling at an edge of the image; and

extracting a multi-scale frequency domain feature from sampling points,

wherein the feature vector is obtained from the multi-scale frequency domain feature.

8. The method of claim 1, wherein, when the customs declaration does not include the HSCODE, the HSCODE of the goods is determined based on a name of goods indicated in the customs declaration.

9. The method of claim 1, wherein the model comprises at least the following information: a device identifier, a HSCODE identifier, a maximum number of templates, respective templates, weights of the respective templates, unique identifiers of the respective templates in a historic image library, and a similarity threshold.

10. A system for inspecting goods comprising:

a scanning device configured to obtain a transmission image and a HSCODE of inspected goods; and

a data processing device configured to:

process the transmission image to obtain a region of interest;

retrieve from a model library a model created based on the HSCODE, in accordance with the HSCODE of the inspected goods; and

determine whether there are any goods not registered in a customs declaration that are contained in the region of interest based on the model,

wherein each template in the model comprises a feature vector, and

when the number of templates in the model is smaller than a predetermined number, a feature vector of a new sample is recorded directly as a template, or

when the number of templates in the model reaches the predetermined number, a feature vector of a new sample that matches the model is not used as a template, and a weight of the template having the highest similarity with the sample is increased, or when a feature vector of a new sample does not match any template in the model, the template having the lowest weight is replaced with the feature vector of the new sample.

11. A non-transitory computer-readable medium comprising computer-executable instructions for causing one or more processors and/or memory to perform a method comprising the steps of:

obtaining a transmission image and a HSCODE of inspected goods;

processing the transmission image to obtain a region of interest;

retrieving from a model library a model created based on the HSCODE, in accordance with the HSCODE of the inspected goods; and

determining whether there are any goods not registered in a customs declaration that are contained in the region of interest based on the model,

wherein each template in the model comprises a feature vector, and

when the number of templates in the model is smaller than a predetermined number, a feature vector of a new sample is recorded directly as a template, or

when the number of templates in the model reaches the predetermined number, a feature vector of a new sample that matches the model is not used as a template, and a weight of the template having the highest similarity with the sample is increased, or when a feature vector of a new sample does not match any template in the model, the template having the lowest weight is replaced with the feature vector of the new sample.