CLAIMS

1. An artificial intelligent system of one or more electronic devices for predicting traffic accident locations, comprising:

at least one information receiving port of an information providing system to receive a plurality of accident records of a plurality of traffic accidents, each of the plurality of accident records, being associated with a corresponding target user terminal,

at least one information transmitting port of an information receiving system to transmit signals to at least one information receiving terminal, wherein the at least one information receiving terminal operates an application installed therein to response to the signals;

at least one storage medium including a first operation system and a set of instructions compatible with the first operation system for providing an accident-prone road section to the at least one information receiving terminal; and

at least one processor in communication with the storage medium, wherein when executing the first operation system and the set of instructions, the at least one processor is directed to:

obtain the plurality of accident records received from the at least one information receiving port;

tracking and receiving, in real-time, a plurality of historical locations of the target user terminal every predetermined time period acquired from at least one GPS system of the information providing system through a network;

storing the plurality of historical locations and times corresponding to the plurality of historical location in the at least one storage medium;

accessing the at least one storage medium to obtain a plurality of locations of the target user terminal that appeared around an on-record accident time, included in the plurality of accident records, and/or around an on-record accident location, included also in the plurality of accident records, by matching the on-record accident time and/or the on-record accident location with the plurality of historical locations;

determine a plurality of refined accident locations by, for each of the plurality of accident records,

operating a first clustering procedure with the plurality of locations of the target user terminal as inputs of the first clustering procedure and assigning a first result of the first clustering procedure as a refined accident location of the plurality of locations of the target user terminal, wherein the first clustering procedure is conducted on processed locations of the plurality of locations;

in response to the determination of the plurality of refined accident locations, determine at least one accident-prone road section by operating a second clustering procedure with the plurality of

refined accident locations corresponding to the plurality of accident records as the inputs of the second clustering procedure;

in response to the determination of the at least one accident-prone road section, generate electronic signals including information of one of the at least one accident-prone road section and a triggering code, wherein the triggering code:

is in a format recognizable by the application installed in the information receiving terminal, and

configured to render the application to generate a presentation of the at least one accident-prone road section on an interface of the information receiving terminal; and

direct the information receiving terminal to display the interface to present the accident-prone road section by sending the electronic signals to the information transmitting port,

wherein the operating the first clustering procedure including:

identify a plurality of points corresponding to the inputs;

determine a result cluster and a result point associated with the result cluster by a point-identification operation, including:

selecting a candidate cluster of points from the plurality of points;

selecting a candidate point from the candidate cluster of points;

operating a first iterative operation until a first stop criteria is met, wherein the first iterative operation includes a plurality of first iterations, and each of the first iteration includes:

using the candidate point as a center point and using the candidate cluster of points as a target cluster of points;

identifying, from the target cluster of points, a cluster of points that is within a predetermined distance from the center point as the candidate cluster of points; and

identifying a point from the candidate cluster of points as the candidate point; and

wherein the second clustering procedure includes the first clustering procedure; and to the determine at least one accident prone road section includes:

obtain the plurality of refined accident locations;

determine a plurality of result clusters by operating the second clustering procedure with the plurality of refined accident locations as inputs of the second clustering procedure; and

for each of the plurality of result clusters, assign a road section corresponding to the result cluster as an accident-prone road section.

2. The system of claim 1, wherein in each of the first iteration, the candidate point in the first iteration is associated with average coordinates of the corresponding candidate cluster of points in the first iteration.

3. The system of claim 2, wherein the candidate point is a point in the candidate cluster of points that is nearest to the average coordinate of the candidates cluster of points, a weighted average coordinates of the candidate cluster of points, or any calculated value of the candidate cluster of points.

4. The system of claim 1, wherein the at least one processor is further directed to:

upon (a determination) that the candidate cluster of points identified in a final first iteration of the first iterative operation meets the first stop criteria,

obtain the candidate cluster of points corresponding to the final first iteration as a result cluster of the first iterative operation; and

obtain the candidate point corresponding to the final first iteration as a result point of the first iterative operation.

5. The system of claim 4, wherein the at least one processor is further directed to output the result point of the first iterative operation as the first result of the first clustering procedure.

6. The system of claim 4, wherein the result point is one of a plurality of result points and the result cluster is one of a plurality of result clusters; and

the at least one processor is further directed to obtain a plurality of subsequent result points and a plurality of subsequent result clusters based on the output of the first iterative operation by operating a second iterative operation until a second stop criteria is met, wherein the second iterative operation includes a plurality of second iterations, and each of the second iteration includes:

updating the plurality of points by removing the result cluster of locations identified in the last iteration of the second iterative operation from the plurality of points;

determining a subsequent result cluster of points and a subsequent result point based on the updated plurality of points by performing the point-identification operation.

7. The system of claim 6, wherein the at least one processor is further directed to:

for each of the plurality of result clusters,

determine a stop time based on an amount of points in the result cluster;

determine whether the stop time associated with the candidate result cluster is greater than a time threshold; and

in response to that the stop time is greater than the time threshold, assign the result point corresponding to the candidate result cluster as the refined accident location.

8. The system of claim 1, wherein the at least one processor is further directed to:

for each of the plurality of result clusters,

determine an amount of points in the result cluster;

determine whether the amount is greater than a density threshold; and

in response that the amount is greater than the density threshold, determine a road section associated with the result cluster based on the points in the result cluster.

9. The system of claim 1, wherein to obtain the plurality of accident records, the at least one processor is further directed to:

receive a plurality of accident reports, each of the plurality of accident reports being associated with a corresponding target user terminal and including an on-record accident time and an an-record accident location;

obtain a plurality of historical locations of the target user terminals;

for each of the plurality of accident reports, merge the corresponding on-record accident time and the an-record accident location with the historical locations of the corresponding target user terminal to obtain an accident record associated with the corresponding target user terminal.

10. The system of claim 9, wherein each of the plurality of accident reports includes at least one of:

an accident report reported by a user of a target user terminal;

an accident report reported by an insurance company; or

an accident report reported by a traffic police.

11. The system of claim 1, further select a cluster that includes densest points as the result cluster.

12. A method for predicting traffic accident locations, implemented on one or more electronic devices having at least one information receiving port of an information providing system, at least one information transmitting port of an information receiving system, at least one storage medium, and at least one processor in communication with the storage medium, comprising:

obtaining a plurality of accident records of a plurality of traffic accidents received from the at least one information receiving port, each of the plurality of accident records being associated with a corresponding target user terminal:

tracking and receiving a plurality of historical locations of the target user terminal every predetermined time period acquired from at least one GPS system of the information providing system through a network:

storing the plurality of historical locations and times corresponding to the plurality of historical locations in the at least one storage medium;

accessing the at least one storage medium to obtain a plurality of locations of the target user terminal that appeared around an on-record accident time, included in the plurality of accident records, and/or around an on-record accident location, included also in the plurality of accident records, by matching the on-record accident time and/or the on-record accident location with the plurality of historical locations;

determining a plurality of refined accident locations by, for each of the plurality of accident records,

operating a first clustering procedure with the plurality of locations of the target user terminal as inputs of the first clustering procedure and assigning a first result of the first clustering procedure as a refined accident location of the plurality of locations of the target user terminal, wherein the first clustering procedure is conducted on processed locations of the plurality of locations;

in response to the determination of the plurality of refined accident locations, determining at least one accident-prone road section by operating a second clustering procedure with the plurality of refined accident locations corresponding to the plurality of accident records as the inputs of the second clustering procedure;

in response to the determination of the at least one accident-prone road section, generating electronic signals including information of one of the at least one accident-prone road section and a triggering code, wherein the triggering code:

is in a format recognizable by the application installed in the information receiving terminal, and

configured to render the application to generate a presentation of the at least one accident-prone road section on an interface of the information receiving terminal; and

directing the information receiving terminal to display the interface to present the accident-prone road section by sending the electronic signals to the information transmitting port,

wherein the operating the first clustering procedure includes:

identifying a plurality of points corresponding to the inputs;

determining a result cluster and a result point associated with the result cluster by a point-identification operation, including:

selecting a candidate cluster of points from the plurality of points;

selecting a candidate point from the candidate cluster of points;

operating a first iterative operation until a first stop criteria is met. wherein the first iterative operation includes a plurality of first iterations, and each of the first iteration includes:

using the candidate point as a center point and using the candidate cluster of points as a target cluster of points;

identifying, from the target cluster of points, a cluster of points that is within a predetermined distance from the center point as the candidate cluster of points; and

identifying a point from the candidate cluster of points as the candidate point;

wherein the second clustering procedure includes the first clustering procedure; and

the determining the at least one accident-prone road section includes:

obtaining the plurality of refined accident locations;

determining a plurality of result clusters by operating the second clustering procedure with the plurality of refined accident locations as inputs of the second clustering procedure; and

for each of the plurality of result clusters, assigning a road section associated with the result cluster as an accident-prone road section.

13. The method of claim 12, wherein in each of the first iteration, the candidate point in the first iteration is associated with average coordinates of the corresponding candidate duster of points in the first iteration.

14. The method of claim 13, wherein the candidate point is a point in the candidate cluster of points that is nearest to the average coordinates of the candidate cluster of points, a weighted average

coordinates of the candidate cluster of points, or any calculated value of the candidate cluster of points.

15. The method of claim 12 further comprising:

upon that the candidate cluster of points identified in a final first iteration of the first iterative operation meets the first stop criteria,

obtaining the candidate cluster of points corresponding to the final first iteration as a result cluster of the first iterative operation; and

obtaining the candidate point corresponding to the final first iteration as a result point of the first iterative operation.

16. The method of claim 15 further comprising outputting the result point of the first iterative operation as the first result of the first clustering procedure.

17. The method of claim 15, wherein the result point is one of a plurality of result points and the result cluster is one of a plurality of result clusters; and the method further includes:

obtaining a plurality of subsequent result points and a plurality of subsequent result clusters based on the output of the first iterative operation by operating a second iterative operation until a second stop criteria is met, wherein the second iterative operation includes a plurality of second iterations, and each of the second iteration includes:

updating the plurality of points by removing the result cluster of locations identified in the last iteration of the second iterative operation from the plurality of points;

determining a subsequent result cluster of points and a subsequent result point based on the updated plurality of points by performing the point-identification operation.

18. The method of claim 12, wherein the obtaining the plurality of accident records includes:

receiving a plurality of accident reports, each of the plurality of accident reports being associated with a corresponding target user terminal and including an on-record accident time and an an-record accident location;

obtaining a plurality of historical locations of the target user terminals;

for each of the plurality of accident reports, merging the corresponding on-record accident time and the an-record accident location with the historical locations of the corresponding target user terminal to obtain an accident record associated with the corresponding target user terminal.

19. The method of claim 12, further selecting a cluster that includes densest points as the result cluster.

20. A non-transitory computer readable medium, comprising an operation system and at least one set of instructions compatible with the operation system for predicting traffic accident locations, wherein when executed by at least one processor of one or more electronic device, the at least one set of instructions directs the at least one processor to:

obtain a plurality of accident records of a plurality of traffic accidents, each of the plurality of accident records being associated with a corresponding target user terminal

tracking and receiving a plurality of historical locations of the target user terminal every predetermined time period acquired from at least one GPS system of the information providing system through a network;

storing the plurality of historical locations and times corresponding to the plurality of historical locations in at least one storage medium;

accessing the at least one storage medium to obtain a plurality of locations of the

target user terminal that appeared around an on-record accident time, included in the plurality of accident records, and/or around an on-record accident location, included also in the plurality of accident records, by matching the on-record accident time and/or the on-record accident location with the plurality of historical locations;

determine a plurality of refined accident locations by, for each of the plurality of accident records,

operating a first clustering procedure with the plurality of locations of the target user terminal as inputs of the first clustering procedure and assigning a first result of the first clustering procedure as a refined accident location of the plurality of locations of the target user terminal, wherein the first clustering procedure is conducted on processed locations of the plurality of locations;

in response to the determination of the plurality of refined accident locations, determine at least one accident-prone road section by operating a second clustering procedure with the plurality of refined accident locations corresponding to the plurality of accident records as the inputs of the second clustering procedure;

in response to the determination of the at least one accident-prone road section, generate electronic signals including information of one of the at least one accident-prone road section and a triggering code, wherein the triggering code:

is in a format recognizable by an application installed in an information receiving terminal, and

configured to render the application to generate a presentation of the at least one accident-prone road section on an interface of the information receiving terminal; and

direct the information receiving terminal to display the interface to present the accident-prone road section by sending the electronic signals to the information transmitting port.

wherein the operating the first clustering procedure include:

identify a plurality of points corresponding to the inputs;

determine a result cluster and a result point associated with the result cluster by a point-identification operation. including:

selecting a candidate cluster of points from the plurality of points:

selecting a candidate point from the candidate cluster of points;

operating a first iterative operation until a first stop criteria is met, wherein the first iterative operation includes a plurality of first iterations. and each of the first iteration includes:

using the candidate point as a center point and using the candidate cluster of points as a target cluster of points;

identifying, from the target cluster of points, a cluster of points that is within a predetermined distance from the center point as the candidate cluster of points; and

identifying a point from the candidate cluster of points as the candidate point; and

wherein the second clustering procedure includes the first clustering procedure; and

to determine the at least one accident-prone road section, the processor is further directed to:

obtain the plurality of refined accident locations;

determine a plurality of result clusters by operating the second clustering procedure with the plurality of refined accident locations as inputs of the second clustering procedure; and

for each of the plurality of result clusters, assign a road section corresponding to the result cluster as an accident-prone road section.