Claims

1. A processing apparatus for traffic management of a network of roads, comprising a processor and a memory, the processing apparatus being configured, under control of the processor to execute instructions in the memory to:

generate, based on journey data sets, each journey data set comprising data indicative of a journey by a road user that comprises traversing an intersection node of the network of roads and being derived using geolocation transmissions from a communications device of the road user, in one or more data records,

first count data indicative of a first count of the road users travelling on an incoming road leading to the intersection node, and

second count data indicative of a second count of the road users travelling on an outgoing road of at least two outgoing roads, each outgoing road leading away from the intersection node,

wherein the incoming road and the at least two outgoing roads intersect at the intersection node;

generate, in the one or more data records, result data indicative of a result that is determined based on the first count and the second count;

if the result satisfies a condition for restriction, generate, in the one or more data records, restriction data indicative of a restriction of traffic from the incoming road to the outgoing road via the intersection node; and

generate, based on an angle defined between the outgoing road and the incoming road, in the one or more data records, type data indicative of a type of the restriction.

2. The processing apparatus as claimed in claim 1,

wherein, for generating the result data, the processing apparatus is configured to generate the result data indicative of the result that is determined based on a ratio defined by the second count to the first count, and

wherein the result satisfies the condition for restriction if the result is less than a defined threshold.

3. The processing apparatus as claimed in claim 2,

wherein, for generating the restriction data, the processing apparatus is configured to generate the restriction data if the result satisfies the condition for restriction, and if the second count is less than another defined threshold.

4. The processing apparatus as claimed in any one of claims 1 to 3, wherein, starting from the incoming road to the outgoing road in an anti-clockwise direction,

if the angle is in a first range of between about 80° and about 100°, the processing apparatus is configured to, for generating the type data, generate the type data indicative of a no-right turn restriction; and

if the angle is in a second range of between about 255° and about 285°, the processing apparatus is configured to, for generating the type data, generate the type data indicative of a no-left turn restriction.

5. The processing apparatus as claimed in claim 4, wherein, starting from the incoming road to the outgoing road in the anti-clockwise direction, if the angle is outside of the first range and the second range, the processing apparatus is configured to, for generating the type data, generate the type data indicative of a no-entry restriction.

6. The processing apparatus as claimed in any one of claims 1 to 5, further configured to generate, if a degree of an end node associated with the outgoing road is determined to be one, in the one or more data records, data indicative of the outgoing road being a dead-end road.

7. The processing apparatus as claimed in any one of claims 1 to 6, further configured to add the restriction data and the type data to data corresponding to the network of roads.

8. The processing apparatus as claimed in any one of claims 1 to 7, further configured to, in response to a request from a user to access data associated with the intersection node, communicate the restriction data and the type data to a device of the user for communicating the restriction and the type of the restriction to the user.

9. The processing apparatus as claimed in any one of claims 1 to 8, further configured to process data indicative of a digital map representative of the network of roads, the restriction data and the type data for communicating information corresponding to the restriction and the type of the restriction with the digital map.

10. A method for traffic management of a network of roads, the method comprising:

generating, based on journey data sets, each journey data set comprising data indicative of a journey by a road user that comprises traversing an intersection node of the network of roads and being derived using geolocation transmissions from a communications device of the road user, in one or more data records,

first count data indicative of a first count of the road users travelling on an incoming road leading to the intersection node, and

second count data indicative of a second count of the road users travelling on an outgoing road of at least two outgoing roads, each outgoing road leading away from the intersection node,

wherein the incoming road and the at least two outgoing roads intersect at the intersection node;

generating, in the one or more data records, result data indicative of a result that is determined based on the first count and the second count;

if the result satisfies a condition for restriction, generating, in the one or more data records, restriction data indicative of a restriction of traffic from the incoming road to the outgoing road via the intersection node; and

generating, based on an angle defined between the outgoing road and the incoming road, in the one or more data records, type data indicative of a type of the restriction.

11. The method as claimed in claim 10,

wherein generating the result data comprises generating the result data indicative of the result that is determined based on a ratio defined by the second count to the first count, and

wherein the result satisfies the condition for restriction if the result is less than a defined threshold.

12. The method as claimed in claim 11,

wherein generating the restriction data comprises generating the restriction data if the result satisfies the condition for restriction, and if the second count is less than another defined threshold.

13. The method as claimed in any one of claims 10 to 12, wherein, starting from the incoming road to the outgoing road in an anti-clockwise direction,

if the angle is in a first range of between about 80° and about 100°, generating the type data comprises generating the type data indicative of a no-right turn restriction; and

if the angle is in a second range of between about 255° and about 285°, generating the type data comprises generating the type data indicative of a no-left turn restriction.

14. The method as claimed in claim 13, wherein, starting from the incoming road to the outgoing road in the anti-clockwise direction, if the angle is outside of the first

range and the second range, generating the type data comprises generating the type data indicative of a no-entry restriction.

15. The method as claimed in any one of claims 10 to 14, further comprising generating, if a degree of an end node associated with the outgoing road is determined to be one, in the one or more data records, data indicative of the outgoing road being a dead-end road.

16. The method as claimed in any one of claims 10 to 15, further comprising adding the restriction data and the type data to data corresponding to the network of roads.

17. The method as claimed in any one of claims 10 to 16, further comprising, in response to a request from a user to access data associated with the intersection node, communicating the restriction data and the type data to a device of the user for communicating the restriction and the type of the restriction to the user.

18. The method as claimed in any one of claims 10 to 17, further comprising processing data indicative of a digital map representative of the network of roads, the restriction data and the type data for communicating information corresponding to the restriction and the type of the restriction with the digital map.

19. A computer program or a computer program product comprising instructions for implementing the method as claimed in any one of claims 10 to 18.

20. A non-transitory storage medium storing instructions, which when executed by a processor cause the processor to perform the method as claimed in any one of claims 10 to 18.