benefit advertisers (or merchants) when consumers purchase their products and also develop a positive relationship between consumers and merchants.

[0005] Herein disclosed are embodiments of methods and systems for predicting purchasing behaviour of a target user that addresses one or more of the above problems.

[0006] Furthermore, other desirable features and characteristics will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and this background of the disclosure.

SUMMARY

[0007] According to a first aspect of the present invention, there is provided a system for predicting purchasing behaviour of a target user, the system comprising: a server having at least one processor and at least one memory including computer program code, the at least one memory and the computer program code configured to, with the at least one processor, cause the server at least to: receive user identity data, the user identity data comprising a user identifier identifying a profile characteristic of the target user and/or location data identifying a location of the target user; receive, from at least one sensor device, sensor data based on the location data, the sensor data comprising ambience data associated with the location identified by the location data, the ambience data representing a state of the location of the target user; retrieve historical transaction data by querying a transaction database, the historical transaction data including transactions settled for a plurality of users having the profile characteristic of the target user; and predict the purchasing behaviour of the target user based on the retrieved historical transaction data and the received sensor data, wherein the ambience data further comprises a plurality of parameters, and the plurality of parameters comprises at least one of temperature, illumination, weather, humidity level, sound level and/or pressure.

[0007a] According to a second aspect of the present invention, there is provided a computer-implemented method for predicting purchasing behaviour of a target user, the method

comprising: receiving user identity data, the user identity data comprising a user identifier identifying a profile characteristic of the target user and location data identifying a location of the target user; receiving, from at least one sensor device, sensor data based on the location data, the sensor data comprising ambience data associated with the location identified by the location data, the ambience data representing a state of the location of the target user; retrieving historical transaction data by querying a transaction database, the historical transaction data including transactions settled for a plurality of users having the profile characteristic of the target user; and predicting the purchasing behaviour of the target user based on the retrieved historical transaction data and the received sensor data, wherein the ambience data further comprises a plurality of parameters, and the plurality of parameters comprises at least one of temperature, illumination, weather, humidity level, sound level and/or pressure.

[0008] In an example, the ambience data may further comprise a plurality of parameters and the server may be further configured to: calculate a weighted score for each of the plurality of parameters after receiving the sensor data; and determine the state of the location of the target user based on the weighted score for each of the plurality of parameters.

[0009] In an example, the server may be further configured to: determine a plurality of transactions to recommend to the target user based on the predicted purchasing behaviour of

the target user; and transmit, via a user device, the plurality of determined transactions to the target user.

[0010] In an example, the server may be further configured to: identify a plurality of transaction amounts by querying the transaction database having stored thereon the transaction amounts corresponding to the plurality of historical transaction data, each of the corresponding transaction amount relating to an amount that the identified users have spent in each of a plurality of transaction categories; and identify a corresponding transaction amount that the target user is likely to spend in each of the plurality of transaction categories based on the identified corresponding transaction amount of the identified users; wherein the determination of the plurality of transactions to recommend is based on the identified transaction amount.

[0011] In an example, the server may be further configured to receive, from the user device, a transaction request, the transaction request including one of the determined transaction selected by the target user.

[0012] In an example, the server may be further configured to, after predicting the purchasing behaviour of the target user: transmit the transaction request to a merchant server based on the selection by the target user; receive, from the merchant server, a transaction completion message to indicate settlement of the transaction; and update, in the transaction database, the historical transaction data corresponding to the profile characteristic of the target user in response to a receipt of the transaction completion message.

[0013] In an example, the server may be further configured to transmit the plurality of determined transactions to the target user via a push notification.

[0014] In an example, the plurality of parameters may comprise at least one of temperature, illumination, weather, humidity level, sound level and/or pressure.

[0015] In an example, the server may be further configured to: receive a facial image of the target user; and determine the profile characteristic of the target user based on the facial image of the target user.

[0016] In an example, the server may be further configured to predict the purchasing behaviour of the target user based on the received facial image.

[0017] According to an example, there is provided a computer-implemented method for predicting purchasing behaviour of a target user, the method comprising: receiving user identity data, the user identity data comprising a user identifier identifying a profile characteristic of the target user and location data identifying a location of the target user; receiving, from at least one sensor device, sensor data based on the location data, the sensor data comprising ambience data associated with the location identified by the location data, the ambience data representing a state of the location of the target user; retrieving historical transaction data by querying a transaction database, the historical transaction data including transactions settled for a plurality of users having the profile characteristic of the target user; and predicting the purchasing behaviour of the target user based on the retrieved historical transaction data and the received sensor data.

[0018] In an example, the ambience data may further comprise a plurality of parameters and the method may further comprise: calculating a weighted score for each of the plurality of parameters after receiving the sensor data; and determining the state of the location of the target user based on the weighted score for each of the plurality of parameters.

[0019] In an example, the method may comprise: determining a plurality of transactions to recommend to the target user based on the predicted purchasing behaviour of the target user; and transmitting, via a target user device, the plurality of determined transactions to the target user.

[0020] In an example, the method may comprise receiving, from the target user device, a transaction request, the transaction request including one of the determined transaction selected by the target user.

[0021] In an example, the method may comprise: identifying a plurality of transaction amounts by querying the transaction database having stored thereon the transaction amounts corresponding to the plurality of historical transaction data, each of the corresponding transaction amount relating to an amount that the identified users have spent in each of a plurality of transaction categories; and identifying a corresponding transaction amount that the target user is likely to spend in each of the plurality of transaction categories based on the identified corresponding transaction amount of the identified users; wherein determining the plurality of transactions to recommend is based on the identified transaction amount.

[0022] In an example, the method may comprise: after predicting the purchasing behaviour of the target user, transmitting a transaction request to a merchant server based on the selection by the target user; receiving, from the merchant server, a transaction completion message to indicate settlement of the transaction; and updating, in the transaction database, the historical transaction data corresponding to the profile characteristic of the target user in response to a receipt of the transaction completion message.

[0023] In an example, the step of transmitting the plurality of determined transactions to the target user may comprise transmitting via a push notification.

[0024] In an example, the step of identifying the profile characteristic of the target user may comprise: receiving a facial image of the target user; and determining the profile characteristic of the target user based on the facial image of the target user.

[0025] In an example, the step of predicting the purchasing behaviour of the target user may be based on the received facial image.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] Embodiments of the invention will be better understood and readily apparent to one of ordinary skill in the art from the following written description, by way of example only, and in conjunction with the drawings, in which:

[0027] Figure 1 shows a system 100 for predicting purchasing behaviour of a target user according to an example embodiment.

[0028] Figures 2A to 2B show a flow chart 200 of a method for predicting purchasing behaviour of a target user using the system 100 of Figure 1 according to an example embodiment.

[0029] Figure 3A shows a schematic diagram 300 illustrating the flow of information between various entities for predicting purchasing behaviour of a target user based on the method of Figures 2A to 2B according to an example embodiment.

CLAIMS

What is claimed is:

1. A system for predicting purchasing behaviour of a target user, the system comprising:

a server having at least one processor and

at least one memory including computer program code,

the at least one memory and the computer program code configured to, with the at least one processor, cause the server at least to:

receive user identity data, the user identity data comprising a user identifier identifying a profile characteristic of the target user and/or location data identifying a location of the target user;

receive, from at least one sensor device, sensor data based on the location data, the sensor data comprising ambience data associated with the location identified by the location data, the ambience data representing a state of the location of the target user;

retrieve historical transaction data by querying a transaction database, the historical transaction data including transactions settled for a plurality of users having the profile characteristic of the target user; and

predict the purchasing behaviour of the target user based on the retrieved historical transaction data and the received sensor data;

wherein the ambience data further comprises a plurality of parameters, and the plurality of parameters comprises at least one of temperature, illumination, weather, humidity level, sound level and/or pressure.

2. The system of claim 1, wherein the server is further configured to:

calculate a weighted score for each of the plurality of parameters after receiving the sensor data; and

determine the state of the location of the target user based on the weighted score for each of the plurality of parameters.

3. The system of claim 1 or 2, wherein the server is further configured to:

determine a plurality of transactions to recommend to the target user based on the predicted purchasing behaviour of the target user; and

transmit, via a user device, the plurality of determined transactions to the target user.

4. The system of claim 3, wherein the server is further configured to:

identify a plurality of transaction amounts by querying the transaction database having stored thereon the transaction amounts corresponding to the plurality of historical transaction data, each of the corresponding transaction amount relating to an amount that the identified users have spent in each of a plurality of transaction categories; and

identify a corresponding transaction amount that the target user is likely to spend in each of the plurality of transaction categories based on the identified corresponding transaction amount of the identified users;

wherein the determination of the plurality of transactions to recommend is based on the identified transaction amount.

5. The system of claim 4, wherein the server is further configured to:

receive, from the user device, a transaction request, the transaction request including one of the determined transaction selected by the target user.

6. The system of claim 5, wherein the server is further configured to, after predicting the purchasing behaviour of the target user:

transmit the transaction request to a merchant server based on the selection by the target user;

receive, from the merchant server, a transaction completion message to indicate settlement of the transaction; and

update, in the transaction database, the historical transaction data corresponding to the profile characteristic of the target user in response to a receipt of the transaction completion message.

7. The system of claim 3, wherein the server is further configured to transmit the plurality of determined transactions to the target user via a push notification.

8. The system of any one of the preceding claims, wherein the server is further configured to:

receive a facial image of the target user; and

determine the profile characteristic of the target user based on the facial image of the target user.

9. The system of claim 8, wherein the server is further configured to predict the purchasing behaviour of the target user based on the received facial image.

10. A computer-implemented method for predicting purchasing behaviour of a target user, the method comprising:

receiving user identity data, the user identity data comprising a user identifier identifying a profile characteristic of the target user and location data identifying a location of the target user;

receiving, from at least one sensor device, sensor data based on the location data, the sensor data comprising ambience data associated with the location identified by the location data, the ambience data representing a state of the location of the target user;

retrieving historical transaction data by querying a transaction database, the historical transaction data including transactions settled for a plurality of users having the profile characteristic of the target user; and

predicting the purchasing behaviour of the target user based on the retrieved historical transaction data and the received sensor data;

wherein the ambience data further comprises a plurality of parameters, and the plurality of parameters comprises at least one of temperature, illumination, weather, humidity level, sound level and/or pressure.

11. The method of claim 10, the method further comprising:

calculating a weighted score for each of the plurality of parameters after receiving the sensor data; and

determining the state of the location of the target user based on the weighted score for each of the plurality of parameters.

12. The method of claim 10 or 11, the method further comprising:

determining a plurality of transactions to recommend to the target user based on the predicted purchasing behaviour of the target user; and

transmitting, via a target user device, the plurality of determined transactions to the target user.

13. The method of claim 12, the method further comprising:

receiving, from the target user device, a transaction request, the transaction request including one of the determined transaction selected by the target user.

14. The method of any one of claims 10 to 13, the method further comprising:

identifying a plurality of transaction amounts by querying the transaction database having stored thereon the transaction amounts corresponding to the plurality of historical transaction data, each of the corresponding transaction amount relating to an amount that the identified users have spent in each of a plurality of transaction categories; and

identifying a corresponding transaction amount that the target user is likely to spend in each of the plurality of transaction categories based on the identified corresponding transaction amount of the identified users;

wherein determining the plurality of transactions to recommend is based on the identified transaction amount.

15. The method of claim 12, the method further comprising:

after predicting the purchasing behaviour of the target user,

transmitting a transaction request to a merchant server based on the selection by the target user;

receiving, from the merchant server, a transaction completion message to indicate settlement of the transaction; and

updating, in the transaction database, the historical transaction data corresponding to the profile characteristic of the target user in response to a receipt of the transaction completion message.

16. The method of claim 12, wherein the step of transmitting the plurality of determined transactions to the target user comprises transmitting via a push notification.

17. The method of any one of claims 10 to 16, wherein the step of identifying the profile characteristic of the target user comprises:

receiving a facial image of the target user; and

determining the profile characteristic of the target user based on the facial image of the target user.

18. The method of claim 17, wherein the step of predicting the purchasing behaviour of the target user is based on the received facial image.