

PART-TIME WORK MANAGEMENT SYSTEM INCLUDING TERMINALS USING
DISTRIBUTED DATA STORAGE

BACKGROUND

5 [1] Field

[2] The present disclosure relates to a part-time work management system including terminals using distributed data storage.

10 [3] Description

[4] The present disclosure relates to a part-time work management system including terminals. In conventional management of part-time employees, an employer has more power than employees. Thus, it is a reality that employees hired as
15 part-time employees face difficulties to prove damages caused by unfair practices, such as lack of an employment contract, reduced break times, or changes in working hours. In addition, even in the case that there are settlement standards under the Korean Labor Standards Act for overtime work, holiday work, and night
20 work, wage settlement has been made unilaterally or premium pay standards have been neglected in the case of employees hired as part-time employees who are not protected by a labor union. Thus, employees have suffered from damages in a number of cases. In order to correct such unfair practices under the law, a number
25 of procedures must be acknowledged, a large amount of time is

required, and many costs are incurred. Thus, employees generally give up when the amount of delinquent wage is not significantly large.

[5] In contrast, in some cases, even in the case that an employee is late to work or absent, neglects work, suddenly gives notice of resignation, or does not show up and cuts off a contact without notice of resignation, the employer must pay a set wage instead of holding the employee accountable for the above.

[6] In the part-time labor market, frequently, recruiting and job seeking may not be efficient in consideration of time and effort spent therefor. Due to the characteristics of the part-time labor market, i.e., a short-term employment market in which employees sometimes do not reveal their real names, the above-described problems have been repeated and increased without improvement or being overcome. Thus, the part-time labor market has significantly shrunk. There has been an urgent demand for a service or a system for promoting, assisting in, and fairly managing recruiting and job seeking in this market.

[7] In particular, when there is a conflict between an employer and an employee, it is necessary for the employee that the time that the employee has actually worked is reflected, even in the case that the work times are not reflected in the favor of the employee. However, it has been extremely difficult for the employee to obtain information or data for proving the actual time that the employee has worked.

[8] In this regard, in the related art, Korean Patent Application Publication No. 10-2017-0009027, entitled "*WAGE PAYMENT METHOD AND WAGE PAYMENT SYSTEM*," was disclosed. However, this technology has no specific characteristics, except that a wage corresponding to wage information calculated on the basis of arrival information input through a point of sale (POS) terminal is paid with a card.

[9] The information disclosed in the Background section is only provided for a better understanding of the background and should not be taken as an acknowledgment or any form of suggestion that this information forms prior art that would already be known to a person having ordinary skill in the art.

BRIEF SUMMARY

[10] Various aspects of the present disclosure provide a system by which an employer may be reliably supplied with employees so as to hire an employee able to provide improved quality of work, and the employee may be fairly paid, with his/her work time being accurately measured.

[11] Also provided is a system able to prevent or minimize a poor attitude in work, a lack of professional ethics, and related conflicts repeatedly occurring in the short-term market in which evaluations based on attitude and ability are not recorded in an employee's real name.

[12] Also provided is a system by which an employer and an

employee may determine and configure start and end points of work times and break times of the employee to reduce the possibility of conflict. The determined work time may be stored in a distributed manner, so that the employer and the employee
5 may determine the work times in any place at any time.

[13] In order to achieve the above objective, there is provided a part-time work management system. The system (11) connected is connected to an employer terminal (12) and an employee terminal (13) through a network. When the employee terminal (13) requests
10 that start and end points of a work and/or start and end points of a break be determined, a contract label may be transmitted to the system (11) through the employee terminal (13) and, when the contract label is the same as predetermined contract label, a timer module (28) may count the start and end points of the work
15 and/or the start and end points of the break. A wage to be paid according to a counted work time may be paid from an amount of money prepaid through the employer terminal (12). A contract fulfillment determination module (27) may determine the wage to be paid according to a counted work time by referring to a
20 working conditions database (DB, 23) in which contract conditions approved and agreed by the employer terminal (12) and the employee terminal (13) are stored and transmit information regarding the wage to be paid to a payment management module (29). A payment management module (29) may transfer the wage to
25 an employee account via a payment system (14).

[14] Provided is a part-time work management system. The system (11) is connected to an employer terminal (12) and an employee terminal (13) through a network. When the employee terminal (13) requests that start and end points of a work and/or start and end points of a break be determine, a contract label is transmitted to the system (11) through the employee terminal (13) and, when the contract label is the same as a predetermined contract label, a timer module (28) counts the start and end points of the work and the break. A wage to be paid according to a counted work time is paid from an amount of money prepaid through the employer terminal (12), and a contract fulfillment determination module (27) determines the wage to be paid according to the counted work time by referring to a working conditions database (23) in which contract conditions approved and agreed by the employer terminal (12) and the employee terminal (13) are stored and transmits information regarding the wage to be paid, together with personally identifiable information and information regarding start and end points of the work time and start and end points of a break time, to a payment management module (29). A coin server (51) records the information provided by the payment management module (29), and a coin account management module (61) provides coins to an employee account in accordance with the information provided. At an exchange request, an exchange module (62) provides cash corresponding to the coins to a cash employee account for a

predetermined or greater amount of money.

[15] Functions of the employee terminal (13), except for functions necessary to the work, may be limited by the mobile phone function limiting module (30) during the work time.

5 [16] The system (11) may instruct either the employer or the employee accessed the system (11) through either the employee terminal (13) or the employer terminal (12) to upload either a recruiting post or a job seeking post. The post may be deleted by the system after passage of a predetermined time or either
10 recruiting or job seeking is accomplished, so that either latest recruiting information or latest job seeking information is posted.

[17] The system (11) may include a contract fulfillment assistance module (26). When both parties are attempting to make
15 an agreement on the work time and a work pattern, the contract fulfillment assistance module (26) may make a proposal on matters that the both parties have to agree according to business type and time without violating laws and help the both parties make an agreement on the matters, thereby reducing a risk of conflicts.

20 [18] The system (11) may be entrusted with a wage payment account of the employer, manage the wage payment account by storing the account number and details of the wage payment account in a deposit database (24), and allow a wage to be paid through the wage payment account using a payment system whenever
25 wage payment is required.

[19] The contract label may be one from among a password, a figure, a barcode, an input pattern, a two-dimensional barcode, a near field communication (NFC) identifier, a beacon, and a fingerprint.

5 [20] The contract label may include a picture taken together with an indicator disposed in a shop. The system (11) may count the start and end points of the work and/or the start and end points of the break by recognizing a number on the indicator.

[21] The employee terminal (13) may determine that the employee
10 is located in the shop using the beacon and the near field communication identifier disposed in the shop. The system (11) may receive a picture transmitted from the employee terminal (13), determines the time of the transmission of the picture, determines whether or not the picture is taken by the employee
15 by recognizing the face of the employee in the picture, and instructs the timer module (28) to count the start and end points of the work and/or the start and end points of the break.

[22] When the payment management module (29) requests that the coin server (51) pay the wage, user identification information,
20 hourly rate, and actual work time information, together with an amount of money requested to be paid, may be provided to the coin server (51). The information may be stored in a distributed data method using a blockchain.

[23] At a payment request from the employee terminal (13), the
25 exchange module (62) may send a payment request to a bank so

that a coin to cash ratio is 1:1 for a predetermined amount of money or more.

[24] The coin server (51) may request that the employer terminal (12) previously purchase coins to be paid to the employee.

5 [25] According to the above-described configuration, the effect of providing an actual job seeking portal in which substantial recruiting and job seeking are actively carried out may be obtained. The system may help the employer and the employee agree on details, so that the wage may be exactly calculated and paid.

10 [26] The employer may be provided with the employee able to improve the quality of work, and the employee may be paid a fair wage for the work time.

[27] A virtuous cycle enabling both the employer and the employee to be provided with a qualified employee and a qualified
15 job may be provided through evaluation and management. In addition, in the system, a malicious employer and an insincere employee may be expelled naturally.

[28] After both the employer and the employee determine start and end points of the work time and the break time, the wage is
20 paid by the determined work time.

[29] The employer may also be provided with employment by paying the wage by fairly calculating the hourly rate.

DESCRIPTION OF DRAWINGS

25 [30] The above and other objectives, features, and advantages

of the present disclosure will be more clearly understood from the following detailed description, taken in conjunction with the accompanying drawings, in which:

[31] FIGS. 1 to 7 are views illustrating an embodiment according to the present disclosure.

DETAILED DESCRIPTION

[32] Hereinafter, the present disclosure will be described in detail with reference to the accompanying drawings. A system 11 according to the present disclosure is connected to an employer terminal 12 and an employee terminal 13 and also to a separate payment system 14 through a network. The employer terminal 12 is connected to the system 11 through the network. At an early stage, an employer registers the industrial category of his/her business and employment conditions in the system 11, and information regarding the employer is stored in an employer database (DB) 21. An employee registers information regarding, for example, the history and the specialty of the employee in an employee DB 22. When job search conditions of the employee match recruiting conditions of the employer, the system 11 determines the intention of the employer and the intention of the employee. Here, an agreement to specific employment conditions is transmitted from the terminals of both parties, and specific contract details regarding work are stored in an employment conditions DB 23.

[33] The system 11 requires the employer to deposit a predetermined amount of money before the commencement of work. In this regard, the system 11 may include a payment module 25 and may include a deposit DB 24 for management of employer-specific deposits. In addition, the payment system 14 is also used to pay a wage for the work of the employee.

[34] The amount of money paid may be managed by the system 11, or the amount of money paid may be managed by a trust system 15 connected to the Internet in order to prevent the money from being arbitrarily used by the operator of the system 11.

[35] At least a predetermined amount of money or at least an amount of money corresponding to employee's wages for several days must be deposited and maintained. When the deposit is reduced to or goes below a predetermined amount, information regarding this situation is transmitted to the terminals of the employer and the employee, and the employer is requested to deposit the deficit.

[36] In addition, the payment system 14 may include at least one coin server 51 or may be connected to the coin server 51 through the network. The wage of the employee may be paid in the form of points or coins directly exchangeable into cash, instead of being paid in cash. The payment management module 29 sends deposit information for wage payment to the coin server 51. The deposit information may include information regarding, for example, work hour, hourly rate, and a total payment amount of

the employee. The coin server 51 pays coins to an employee coin account 52.

[37] The employer is requested to pay coins or points (hereinafter, collectively referred to as "coins") provided by

5 the coin server 51 to the employee coin account 52 via the coin server 51, instead of depositing cash. Conventionally, for payment with cash, the employer account must be entrusted or the employer was required to deposit money into an account from which the payment system 14 could withdraw the money at any time.

10 However, since this method requires complete approval for withdrawal from someone else's account, there has been a risk of an accident. In addition, in the case of payment with cash, a cost may be incurred by a simple operation of sending an alarm regarding the payment with cash via the web or using an application. In contrast, in an embodiment of the present disclosure in which data is transmitted and received through the network, sending an alarm via the web or using an application does not incur a substantial cost. In addition, no cost is incurred when accumulating coins.

20 [38] The employee may be unconcerned for whether he/she receives a wage paid in cash or coins when coins may be exchanged for cash at any time. The necessity to exchange coins for cash whenever coins are deposited is also reduced. The exchange rate of coins to cash may be 1:1. While coins may be exchanged with cash whenever requested, the minimum amount of exchange may be

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set to be, for example, 1 dollar or 10 dollars in order to prevent the unit of exchange from being too low, so that excessive exchange fees are not incurred. Increases in the exchange fee may be an obstacle to the use of the system
5 irrespective of whether the exchange fee is paid by subscribers or the system.

[39] When coins directly exchangeable to cash are deposited in real time into the coin account of the employee, the employee may determine the details in real time on the web or using an
10 application. Therefore, any inconvenience, such as creating a separate account or a trust account for receipt, may be reduced.

[40] In addition, deposit coins are paid in real time for the actual work time in accordance with the contract agreed upon by the employer and the employee. Calculation of the actual work
15 time will be described later.

[41] In addition, at the same time that coins are immediately deposited to the employee by the employer, the transaction of coins is stored not only in the single coin server 51 but also in a backup server or in a plurality of transaction proof servers.

20 Here, the amount of the deposit and the reason for wage payment are stored in a distributed data method using a blockchain.

[42] That is, together with the issuance or transfer of coins, the reason for wage payment is stored. Such data is stored in a plurality of servers in a distributed manner. Since the data is
25 blocked and stored at regular time intervals in a separate data

backup server, it is difficult to manipulate the data. Thus, whenever there is doubt about work times, the amount to be paid, or the like, or data regarding the work time, the amount to be paid, or the like, either the employer or the employee may request the data stored in the distributed manner from the server. In addition, in the event of a conflict, it is essential to submit objective evidence. According to the present disclosure, both the employer and the employee may obtain the objective work record at any time.

[43] FIG. 6 illustrates this configuration. The coin server 51, the transaction proof server 53, and the backup server 52 store the data regarding coins to be managed in a distributed manner. In this regard, one or more coin servers 51 or one or more other servers may be added. Since the data is stored in a distributed manner using the blockchain, the data regarding coins or the record of the hourly work time and the actual work time, on the basis of which coins are paid, is sent to the coin server 51 together with actual work time determined using a timer module and a contract fulfillment determination module 27 and information regarding the hourly rate concluded in the contract. The coin server 51 deposits coins into an account for which payment is requested. The employee terminal 13 may determine this data by accessing the coin server 51, and the coin server 51 may also immediately determine the cause of deposit or payment using the application installed in the employee terminal 13.

[44] In addition, since data regarding the actual work time and the hourly rate is stored in a plurality of servers in a distributed manner by blockchain technology, it is not easy to manipulate the data regarding the actual work time and the hourly rate. Thus, the data regarding actual work times and hourly rate may be used as data for evidence in the event of a future conflict. Conventionally, even in the case that the employee or the employer suffers from unfair practices, it has been significantly difficult to find data to prove the unfair practice. According to the present disclosure, it is possible to determine the data for proof of the unfair practice at any time, since not only the amount of payment but also the reason for payment is stored.

[45] Each of the servers is activated as a single node and, whenever the work history of each person is updated, an application for updating is made through any single node. A hash value for the application is generated and, when a block generation right is obtained using the generated hash value, the updated work history is input into a new block, which is then propagated to a network to which the node is connected. A next node that has downloaded the block through the network obtains the block generation right and generates a next block. Blocks are propagated in this manner, so that the individual's work history is continuously stored and updated in the blocks from the beginning to the present. A blockchain network structure has no difference from an existing blockchain structure, except that

information stored in the blockchain relates to the start and end points of the work time, the start and end points of the break time, hourly rate, and the like.

[46] This is different from a situation in which a single server
5 has main access rights for a DB or the DB is divided into a plurality of DBs and entities respectively having main access rights for the corresponding DB of the plurality of DBs are provided. The work times (rather than times at which the employee arrived at and left a workplace) of the employee are stored
10 together with the hourly rate so as not to be forged and, afterwards, the data may be determined at any time. In particular, since the work times stored have been determined by both the employer and the employee, the reliability of this method is different from that of a situation in which only one party
15 determines and stores the data. For example, a work time recorder as currently used regards a time point at which the employee enters the area of a Wi-Fi device or a beacon disposed by the employer to be the start point of work time and a time point at which the employee exits the area to be the end point of work
20 time. However, even after the employee has arrived at the workplace, the actual start point of work may be later than the time of the arrival. Thus, the work time recorder does not ensure objectivity due to possibility of being abused by either the employer or the employee. For example, the employee may start
25 work after having been negligent for a while after arrival at

the workplace. In addition, after the employer has instructed the employee to work outside, the employer may record that the employee left the workplace at a time point at which the employee left the area and calculate the wage on this basis.

5 [47] However, according to the present disclosure, the start and end points of actual work times are determined and are stored in the network that may guarantee objectivity, and thus, the possibility of a conflict related to work times is reduced. When one party considers any data to be unfair, he/she may directly
10 protest, request a correction, and directly provide data regarding the reason for the protest. Accordingly, conflicts that may occur between the employer and the employee may be reduced.

[48] At a coin payment request, a coin account management module
15 61 pays the payment-requested wage to the employee account and stores auxiliary data, such as the hourly rate and work times. All received data may be stored using blockchain technology, or data regarding the paid wage may be stored using blockchain technology while the remaining data may be stored in a separate
20 DB.

[49] At the exchange request of the employee terminal 13, an exchange module 62 determines the employee account and requests that the bank server 54 pay an amount of money equal to or greater than an exchange reference to the employee account.

25 [50] At first logging into the system according to the present

disclosure, both the employer and the employee perform a login procedure by inputting simple information and then use the functions of the system 11, such as simple search. After the login procedure, both the employer and the employee may perform recruiting and job seeking activities after inputting more specific information.

[51] The employer inputs information regarding the work time, the workplace, employment conditions, and the like, whereas the employee inputs information necessary for job seeking, such as age, intended work pattern, specialty, and the like.

[52] In a situation in which recruiting or job seeking is in earnest, a recruiting request or a job seeking request is posted. For such posts, the server of the system may provide a form according to recruiting or job seeking, such that subscribers may fill out blanks in the form. The uploaded post is automatically deleted after the passage of a predetermined time. For example, the post may be allowed to be uploaded for 3 days a week. When recruiting or job seeking is not accomplished, the employer or the employee may upload a post again for the following 3 days. When uploading the post again, the employer or the employee may change conditions by analyzing reasons why the previous recruiting or job seeking was not accomplished.

[53] When recruiting or job seeking is not accomplished in the predetermined time, it is estimated that conditions of recruiting or job seeking are unilaterally favorable to only one party among

a recruiter and a job seeker or there is no possibility of recruiting or job seeking to be accomplished, and the post is deleted. However, either the recruiter or the job seeker may upload another post without restrictions. When recruiting or job seeking is accomplished, the corresponding post is deleted. Thus, all posts currently displayed on the server are always the latest posts uploaded by recruiters and job seekers.

[54] In addition, a recruiter or a job seeker whose recruiting or job seeking is not successfully accomplished may be allowed to compare his/her conditions with the conditions of a concluded contract to determine whether or not his/her conditions are far from the conditions prevailing in the labor market.

[55] Conventionally, posts have been displayed without time limits so that as many posts as possible may be displayed. In a variety of cases, posts uploaded a long time ago are displayed together with the latest posts. Thus, a number of posts are useless to the recruiter or the job seeker.

[56] In contrast, according to the present disclosure, only posts of persons who currently want an employee and who are seeking employment may be displayed so that necessary information may be obtained in a short time. Thus, the possibility of the accomplishment of recruiting or job seeking is increased and effort and time spent in recruiting or job seeking are reduced.

[57] In fact, recruiting/job seeking sites currently in service are focused on how many posts are displayed. When a person

actually contacts for recruiting or job seeking, a long time may have passed after the uploading of the post. In a number of cases, the job seeker may be already working in another job, the intention of recruiting or job seeking may have changed, or recruiting or job seeking may have already been accomplished. Accordingly, in order to find a recruiter who is still recruiting an employee or a job seeker who is still seeking employment when the recruiter or the job seeker is contacted, it is necessary to review a large number of posts to contact recruiters or job seekers. In contrast, according to the present disclosure, only posts of actual recruiters and job seekers are present, and thus, recruiting or job seeking may be accomplished rapidly.

[58] In addition, although the number of posts to be uploaded may not be limited, a point system may be used in the uploading of posts so that predetermined points are excluded whenever a post is uploaded. The point system may be configured such that specific points are given at the time of subscription, specific points are given upon the completion of basic curriculum, and after the subscription, points are given according to more detailed information input by a subscriber or activities of the subscriber in the site.

[59] Points are given upon the first completion of basic curriculum in which recruiters and job seekers are trained in, for example, related laws and how to respond to a guest through the basic curriculum. In this manner, the ability and attitude

of recruiters and job seekers may be improved.

[60] In addition, when offline basic curriculum has been completed, it may be determined that the intention of the subscriber for recruiting or job seeking is high, and priority
5 may be imparted to recruiting or job seeking of the subscriber by indicating the subscriber with a different label.

[61] The employer DB 21 includes information regarding the recruiter, is provided with a recruiting search function, and stores therein the region, the business type, the specification
10 or wage type of the shop or company, and the like of the recruiter. The part-time work management system according to the present disclosure generally not only manages part-time work respectively having the work time less than 15 hours per week but may also be applied to situations in which a part-time work
15 is carried out for 15 hours or more per week under the law. In particular, for the part-time work carried out for 15 hours or more per week, a number of standards must be complied with, and thus, compliance with the law is also stored.

[62] The employee DB 22 includes information regarding the job
20 seeker and also includes a region, a business type, and a wage type that the job seeker wants and the specification of the job seeker.

[63] The contact between the recruiter and the job seeker is started by one party among the recruiter and the job seeker
25 accessing the displayed post using a personal computer (PC), a

mobile device, or the like accessible to the network, and then, making a proposal to the other party for recruiting or job seeking. The number of proposals that may be made to the other party for recruiting or job seeking may be limited to a
5 predetermined number (i.e., about 3 to 5 times) for a single person to be recruited. When the number of applicants is equal to 3 or 5 times the number of persons to be recruited, no further applications are received. This is intended to not only prevent information regarding recruiting or job seeking from being
10 maliciously collected but also prevent recruiting or job seeking proposals from being concentrated to a specific person or a specific company having favorable recruiting or job seeking conditions. When the conditions are not favorable, the job seeker may make another proposal. Since a post uploaded by one party is
15 updated every 48 to 72 hours, another post may be uploaded again or another proposal may be made after a predetermined time when recruiting or job seeking is still necessary.

[64] When the recruiter and the job seeker agree with the working conditions and a labor agreement is concluded, data
20 regarding the working conditions of the recruiter and the job seeker is stored in the working conditions DB 23. The post uploaded by the recruiter and the job seeker is deleted when recruiting is successfully accomplished or, after the passage of a predetermined time, when there are no further applications or
25 the recruiting function is stopped. That is, after the

predetermined time, all posts are deleted, and new posts are uploaded at the beginning of recruiting.

[65] When a contract is concluded between the recruiter and the job seeker, a contract fulfillment assistance module 26 assists in determining details of the contract between the recruiter and the job seeker. When break times, work conditions, and the like, in addition to basic matters, such as a place of work, a work pattern, and a wage type, are determined, some matters that one party may be reluctant to request may be determined by the contract fulfillment assistance module 26. In this manner, the possibility of future conflicts may be reduced.

[66] For example, in an 8 hour work, a one hour break time is enforced by the law. The job seeker may be reluctant to strongly request the break time. However, when the contract fulfillment assistance module 26 recognizes that the employee will work for a predetermined time according to the contract, the contract fulfillment assistance module 26 may include conditions of the break time in the contract, i.e., regarding when and how the break time should be given. In addition, according to the present disclosure, start and end points of the work time and the break time are determined and recorded, and thus, it is possible to determine whether or not the break time is actually provided.

[67] In addition, matters which one party among the recruiter and the job seeker may not have acknowledged or which have been burdened to one party customarily may be described in the

contract on the basis of the current laws and regulations. For example, it may be described in the contract that a holiday pay should be given when the employee works for 15 hours or more per week. In addition, details of, for example, the wage type (e.g.,
5 hourly rate, hourly rate, weekly rate, monthly rate, or the like), day offs (e.g., holidays), and allowances for holiday work or overtime work may be described in the contract.

[68] In addition, how to determine the employee arriving at and leaving a workplace, matters that one party is requested to
10 understand, and the like may be added as special terms.

[69] In this manner, when the recruiter and the job seeker make an employment agreement, the contract fulfillment assistance module 26 assists in describing the basic matters, the matters that may be determined according to the work pattern, and the
15 special terms, thereby reducing the possibility of future conflicts.

[70] When the contract is concluded, work starts on the commencement date. The work time of the employee is managed by the system 11. Whether or not the details regarding wage, the
20 break time, and the like are properly followed is determined by the contract fulfillment determination module 27. The contract fulfillment determination module 27 provides a timer by which a timer module 28 may determine times at which the employee arrives at and leaves the workplace in accordance with the agreement
25 between the employer and the employee, and sends information

regarding the operation and stopping of the timer to the contract fulfillment determination module 27 so that the contract fulfillment determination module 27 determines whether or not the contract is being properly fulfilled.

5 [71] When the employee starts working, the employer registers a previously-registered contract label in the system 11. When the employee terminal 13 requests that the system 11 determine start and end points of the work and start and end points of the break time, the system 11 transmits a predetermined contract label to
10 the system 11 through the employee terminal 13. At the request of the employer, the system 11 may transmit the predetermined contract label to the employer terminal 12. The employee inputs the contract label into the employee terminal 13.

[72] Here, the employer terminal 12 may transmit a contract
15 label received after transmitting the contract label, received from the system 11, to the employee terminal 13.

[73] The contract label may be in the form of a password comprised of numbers and letters, and may include any identifiable forms, such as QR code, fingerprint, inputting of
20 a design or a pattern, and indoor location tracking using a beacon.

[74] Transmitting the contract label to the employee terminal includes not only visually recognizing and inputting the contract label but also transmitting the contract label through a network
25 and capturing or scanning, by the employee terminal 13, the

contract label displayed on the employer terminal 12.

[75] When the contract label is input to the employee terminal 13, the system 11 determines the contract label transmitted through the network and then notify the employer terminal 12 and the employee terminal 13 of the start and end points of the work time and the break time.

[76] Both parties are allowed to determine the start and end points of the work time and the break time since pay is determined on the basis of the start and end points of the work time and the break time. At a point at which the work starts or ends or at a point at which the break starts or ends, the start or end point is transmitted from the system 11 to the employee terminal 13. The employee determines the start or end point, and the start or end point is transmitted from the employee terminal 13 to the employer terminal 12. The employer determines the start or end point, and the start or end point is transmitted to the system 11. In this manner, the work time is determined.

[77] When the employer and the employee are located away from each other, a transmission method may be used in place of direct input. The employer may request data, such as a picture or an image, in order to determine whether or not the employee is working. The employee terminal 13 transmits the data necessary for the determining to the employer terminal 12. The position of the employee terminal 13 may be located using the global positioning system (GPS).

[78] The timer module 28 manages the operation of the timer notifying either the employer terminal 12 or the employee terminal 13 of the start and end points of the work.

[79] In addition, the operation of the timer needs to be determined by both the employer and the employee. It may be regarded that both parties have agreed on this matter. The operation of the timer serves as a means by which compliance with the contract concluded between the employer and the employee with may be determined.

[80] When the employee takes a rest during work or finishes work, notification of the interruption of the work or the end of the work is performed by determining a break time or an end point using the terminal of the employer and the terminal of the employee.

[81] When the start and end points of the work time are determined, verification may be made in a situation in which the employer and the employee face each other. In a situation in which one party is located in a remote place, the employee may, for example, verify his/her position in a shop or transmit an image by capturing the image in real time.

[82] In order to prevent the manipulation of time, the system 11 may include an indicator disposed in the shop. The indicator is configured to only display time or number and such that the time cannot be changed. The employee may be instructed to transmit his/her picture taken together with the indicator to

the employer terminal 12. The indicator may be regarded as a one-time password (OTP) generator or a clock, the time of which is unchangeable. Since the time or number of the indicator cannot be changed, when the number displayed on the indicator is captured and transmitted to the system 11, the operation of determining the start and end points of the work may be facilitated. The number displayed on the indicator needs to be identifiable by the system 11 at any time. The number is created using an input value of the time as in the OTP generator, or information of when the employer terminal 12 and the employee terminal 13 communicate is stored using the blockchain technology. In this manner, the number may be identified by the system 11 at any time.

[83] The picture of the employee taken together with the indicator at the commencement of the work may be transmitted from the employee terminal 13 to the employer terminal 12. When a confirmation message of the employer is transmitted from the employer terminal 12 to the system 11, the system 11 recognizes and stores the number in the picture. At this time, the face of the employee may also be recognized and identified.

[84] Alternatively, the indicator may be configured to display the time/number only at the request of the employer terminal 12, so that only the number displayed for a predetermined time may be transmitted from the employee terminal 13 to the employer terminal 12. When the employer terminal 12 receives a request

for verification on the arrival of the employee at the workplace, the employer terminal 12 requests that the indicator in the shop display the number and transmits the number, transmitted from the employee terminal 13, to the system 11. Since the number
5 displayed on the indicator is provided by an algorithm using a time function, the system 11 may obtain the number displayed on the indicator only by determining the time of the transmitted request, thereby more simply determining the number.

[85] The timer module 28 determines the start and end points of
10 the work and the start and end points of the break time of the employee, rather than the time of arrival or leaving of the employee. Accordingly, the employer may pay the wage by the actual work time, and the employee may be paid the wage by the actual work time. In a variety of cases, the times of arrival
15 and leaving are different from the start and end points of the work. When the wage is calculated on the basis of the times of arrival and leaving, there may be case in which the employee arrives at the workplace earlier than scheduled and demands that the earlier arrival be reflected in the calculation of the work
20 time. When a preparation time is necessary for the start and end of the work, the contract fulfillment assistance module 26 may require the preparation time to be regarded as the time for the start and end of the work (e.g., the preparation time to be added to the work time) at the time of contract conclusion.

25 [86] Conventionally, when the employment contract is on an

hourly basis, overtime work carried out for 10 to 20 minutes has not been reflected in the wage. In contrast, according to the present disclosure, the employee may be paid for the time that he/she has actually worked, since accurate calculation may be performed by determining the start and end points. Conventionally, in a situation in which the wage is calculated on an hourly basis, when the employee is late at work, a time longer than a time by which the employee was late has been frequently excluded from the work time. When the work is finished about 10 minutes early, the employer may pay the wage by excluding a corresponding amount. In this manner, an exact amount of money may be paid. Thus, a situation in which the employee does not work for a while after stamping his/her time card or the employee only records his/her arrival and leaving without working may be prevented.

[87] When the employee is not ready to work, the employer may also send a message requesting that the employee be ready to work. Even in the case that the employee finds the request message late, the start and end points of the work and the start and end points of the break time are calculated on the basis of the time at which the employee requested. Accordingly, the time calculation may be performed more accurately, and the wage may be calculated and paid on this basis.

[88] The work time of the employee determined in this manner is determined by the contract fulfillment determination module 27 and is stored in the employee DB 22 of the employer. When the

work is completed in a predetermined work pattern, the wage is transferred to the employee. The payment management module 29 enables this payment to be accomplished. The payment management module 29 determines an amount of money to be paid by determining
5 the employee DB 22 and the working conditions DB 23. The payment is accomplished according to a predetermined wage type, such as hourly rate, hourly rate, weekly rate, or monthly rate. In the case of hourly rate or hourly rate, the wage is transferred as soon as the ending of the work time is verified. The transfer
10 may be performed by the system 11 through the payment system 14 or the trust system 15. In addition, coins may be issued in place of cash and are exchangeable with cash at any time, so that coins do not need to be exchanged immediately. Coins are exchangeable with cash and the employer purchases coins with cash when
15 depositing money. Theoretically, the amount of coins purchased is greater than the amount of coins to be paid. Thus, the entire amount of coins intended to pay cash is smaller than the entire amount of cash deposited.

[89] In addition, customary matters that are not specified in
20 the law may also be reflected. For example, different rates may be applied to the calculation of the work time depending on the work pattern. For example, a higher rate may be applied to unscheduled overtime work or night work. When one hour overtime work is carried out in a 4 hour work contract, a time wage may
25 be paid by applying a 1.5 times rate. Conventionally, the

prescribed work time would be shortened without a notice, or even after night work, holiday work, or overtime work, the wage for weekday regular work would be paid instead of the premium pay specified in the law. In contrast, according to the present disclosure, the contract fulfillment determination module 27 determines the work time counted by the timer module 28 and transmits the work time to the payment management module 29 to pay. Thus, unfair practices that employees have suffered for may be prevented.

[90] However, overtime work additionally carried out for 10 to 20 minutes in addition to the prescribed work time may be paid a surcharge of an overtime work wage. Work may be finished 10 or 20 minutes earlier than prescribed according to the specialty of the work pattern, and a wage corresponding to the reduced work time may not be paid. These cases are considered to be in the socially acceptable range. Thus, the part-time work management system may be configured such that an additive/subtractive calculation may be performed within the range of an exception of about 10% with respect to the ending time of the work.

[91] Conventionally, the employer had to negotiate directly with the employee on this matter. In contrast, according to the present disclosure, the system 11 automatically provides a calculation in a pre-arranged form, and the employer and the employee are only required to correctly determine the work time.

Thus, the possibility of an argument for wage payment is reduced.

Even in the case that there is an objection to wage payment, the objection is submitted to the system 11. Thus, the possibility of conflicts between the employer and the employee is significantly reduced.

5 [92] Currently, in most part-time work, in some cases, when the work time is shortened due to the employer's circumstances, the employee is paid a reduced wage for the reason that the employee did not work for the entirety of the prescribed work time even though the employee fulfilled all of the prescribed activities
10 and were ready to work. That is, the employer does not pay for the time for which the employee did not work for the reason for which the employee is not responsible. However, according to the present disclosure, the employee may be paid a fair wage specified in the labor law. Conventionally, it has been difficult
15 for the employee to consider each of these matters. However, according to the present disclosure, the system 11 manages the work pattern, the work time, and related wages, so that the rights of the employee may be protected.

[93] In particular, since details of the hourly rate according
20 to the work time or the break time are settled by the contract fulfillment assistance module 26 at the time of contract conclusion and whether or not the employee is working in the prescribed work time is continuously managed by the system 11, there may be substantially no objection to wage payment and
25 employment conflicts and wage payment disputes may be reduced.

[94] In addition, the start and end points of the work time may be determined by both parties using mobile phones, and some functions of the mobile phone of the employee may be limited by a mobile phone function limiting module 30. Some employees tend to play with mobile phones instead of working properly. In case of some industrial categories in which the use of mobile phones is prohibited, some functions of mobile phones may be limited. The mobile phone function limiting module 30 limits the functions of the mobile phone according to the industrial category of the work such that minimum functions of the mobile phone necessary to the work are allowed. For example, only a voice call or a Wi-Fi access may be allowed.

[95] Accordingly, the employer may instruct the employee to concentrate on the work, thereby improving the quality of work.

[96] Regarding the wage and payment, the employer deposits a predetermined amount of money into a separate payment account provided by the system 11. The deposit money is used for the settlement of the wage for the work time. In particular, when the contract is concluded on an hourly or hourly rate basis, the deposit is essential so that the wage may be paid immediately after the work time.

[97] However, when a balance of about one-month wage of the employee is maintained, the employer may use his/her main trading account as a wage transfer account from which the wage is transferred. In this case, even in the case that there is no

deposit, when, for example, an average balance in a predetermined period is determined to exceed a predetermined limit, the employer is considered to be solvent and the main trading account of the employer may be used as the wage transfer account from which the part-time work wage is transferred.

[98] For an employer who has difficulty in maintaining the deposit, payment guarantee may be provided by newly issuing an overdraft account or an employee dedicated card by agreement with related government ministries and banks. In this case, an overdraft limit corresponding to one month's part time wage may be authorized. This is intended to prevent delayed wage payment and support small businesses and small and medium-sized enterprises. The wage transfer account is settled once a month in a pre-payment and post-settlement method. When the wage transfer account is determined, the trust system 15 and the payment system 14 receive an approval and account information from the employer through an online medium and allow payment to be performed at every payment request.

[99] After the employer uploads a recruiting post, the employer receives an expected wage according to the type and period of employment transmitted from the system 11 and then deposits an amount of money corresponding to the expected wage. Data regarding the deposit is stored in the deposit DB 24. In the case of hourly rate, an expected amount of money corresponding to 7 days' wage may be deposited. The system 11 transmits a cost,

i.e., a payment cost, calculated according to the concluded type of employment to the payment system 14 and instructs the cost to be transferred to the employee account.

[100] From the employee's point of view, when the employee works
5 for the predetermined time according to the predetermined work pattern, the wage is paid immediately without concern for delayed payment. In addition, the working conditions may also be managed by the system 11. From the employer's point of view, the employer may hire the employee while legal matters related to the
10 employment are consulted. The employer may conveniently hire the employee to do required work whenever necessary.

[101] In addition, the payment account used by the payment system 14 may only be used for paying the wage. That is, costs occurring due to the use of the system 11 should be paid through a separate
15 account or a card. The payment account used by the payment system 14 is only allowed to be used to pay the wage. Thus, costs used in the payment account may be treated as an expenditure due to the wage payment in tax payment calculations.

[102] Otherwise, the system 11 may pay the wage of the employee
20 from an amount of money transferred to the system 11 and withdraw a portion of the money as the cost incurred by the use of the system 11. In this case, value added tax must be added to the money transferred to the system 11 from the employer. The value added tax increases a total amount of money to be paid by the
25 employer. In this regard, the system 11 is entrusted with the

account for the employer's wage payment to pay the wage using the payment system 14. Accordingly, the wage is paid directly from the employer account. The trust system 15 takes necessary procedures to entrust the account to the system 11 and sends
5 information regarding the entrusted account to the system 11, so that the entrusted account is managed using the deposit DB 24. The payment system 14 performs transfer to the employer account according to transfer information sent from the trust system 15 and the system 11.

10 [103] Payment in the wage payment account may be performed to pay the wage by allowing the employer to use the credit card only for paying the wage. This account may only be used for paying the wage.

[104] Accordingly, the earned income of non-regular employees
15 that has not been counted so far may be taxed, transparent taxation may be accomplished, and the employer may write off the wage. In addition, since the employer pays the wage with the credit card, the difficulties involved the accounting of costs may be reduced, and tax payment calculations may be performed
20 conveniently.

[105] In addition, a separate advisory system may provide advice on incidents and accidents that may occur according to the type of work of the currently concluded employment contract. In addition, advice may also be provided about insurance, laws,
25 account, taxation, labor, and the like.

[106] FIG. 2 illustrates an example that is actually used. It may be understood from the figure that the wage is calculated on the basis of the business number, the employee name, the time of arrival, the time of leaving, the work time, and the like.

5 [107] The system 11 may further include the contract fulfillment determining module 27 to determine whether the employee works and the employer pays the wage in accordance with the provisions of the contract. The system 11 reviews the work time of the employee and the contracted work time, the contracted wage and
10 the actually paid wage, the contract document, the pattern of break time, and the like. When there is any problematic matter, the system 11 advises the employer and the employee on this matter. The work/employment state may be reflected in next recruiting/job seeking. In addition, the contract fulfillment
15 history of either the employer or the employee may be stored in a contract fulfillment history DB 31 and may be reflected in the evaluation of either the employer or the employee.

[108] In addition, after the employment contract is terminated, the employer and the employee may evaluate each other, and the
20 evaluations may be reflected in other employment contracts.

[109] Described simply, when the employee is hired by the employer to work a predetermined time per day for at least 3 months, the employer may be bestowed with a mark, such as a flower-shaped mark, so that other employees may prefer the
25 employer bestowed with the mark. Accordingly, this mark, together

with the evaluation of the system 11, may sufficiently form a reference that other employees may consider when selecting an employee in a future employment contract.

[110] The mark of sincerity allows the employee to achieve a chance to receive more wage by increasing his/her hourly rate and induces the employer to choose the employee so that the chance of positive job seeking of the employee may be in a wider range. In addition, for the employer, the quality of recruiting may be improved as a positive function.

[111] An employee who has completed stepwise training provided by the part-time work management company may achieve points, have upgraded job skills, be certified as an employee with strong willingness to work, and be bestowed with a mark indicating priority in job seeking.

[112] In contrast, an employee having a low level of evaluation or a history of conflicts or accidents may be provided with a warning or non-recommended mark. The employee having this mark cannot remove the mark until he/she completes retraining provided by the part-time work management company. When a predetermined number of or more marks are accumulated, the employee may be expelled.

[113] When an employee is frequently absent without permission or late to work, the employee's history containing the absence and lateness is automatically recorded and determined by the system 11. The system 11 may evaluate the sincerity of the

employee and post the evaluation. The evaluation conducted the employer may also be reflected in the evaluation of the employee. Accordingly, when the employee does not fulfill the contract by being absent without permission after having worked for several
5 days and receiving the wage or does not sincerely fulfill the contract in any manner, the insincere fulfillment of the contract is recorded in the contract fulfillment history DB 31, and this record is added to the employer's post or profile. In order to remove the mark of insincerity, the employee is required to
10 complete predetermined training for a predetermined amount of time. According to this system, any person who does not fulfill the concluded contract may be expelled naturally.

[114] FIG. 3 illustrates another example. Referring to FIG. 3, a beacon is disposed in a shop. When an employee arrives at the
15 shop, the system determines whether or not the employee is in the shop. The employee terminal 13 performs short-distance communication or near field communication (NFC) with the beacon in the shop and proves that he/she is in the shop when requesting that the arrival, the leaving, and start and end points of a
20 break be determined. To determine the arrival or the like, the location of the employee may be determined by location tracking. Alternatively, a picture of the employee may be sent to the server, and the server may identify the employee by recognizing the face of the employee. The picture of the employee may be
25 sent to the employer terminal 12 so as to be identified. In this

case, the employee may be determined to be in the shop without a device, such as a GPS receiver. The system 11 determines time information by itself and separately stores time determination information, such as information regarding the arrival.

5 [115] FIG. 4 illustrates yet another example. Referring to FIG. 4, when the employee takes a picture of him/herself for the purpose of identification, the employee terminal may receive information regarding a variable augmented reality (AR) image sent from the system 11 so that the AR image is captured in the
10 picture. In this manner, it is possible to determine whether or not the AR image in the picture of the employee is the same as a designated AR image when identifying the employee. Since the AR image changing over time is randomly sent from the system 11, the AR image may serve as a simple means for determining the
15 time.

[116] FIG. 5 illustrates still another example. Referring to FIG. 5, the employer possesses a card, and the employee provides labor to the employer. A card company determines the work history from the employer, receives a message about whether or not the
20 employee has worked in accordance with the work history, and pays the wage to the employer.

[117] In this case, the employer has a card issued by the card company. The card company requests that the employer pay the wage using the credit card in which information regarding payment
25 is previously stored. As soon as the employer pays the wage, the

card company transfers the wage to the employee. In a conventional situation in which a credit card is used, when payment is performed using the credit card, a member (corresponding to the employee according to the present disclosure) of the card company was paid after the passage of about 3 days. In order to be paid immediately, the member needs to use a Zero-Pay application. The Zero Pay system is configured such that cash is transferred from the account of the card user to the account of the member. In contrast, in the example illustrated in FIG. 5, while payment is performed using the card, the employee corresponding to the member is immediately paid, as in the case of a check card system. The employer who paid the wage using the card receives a bill issued by the card company and pays the bill in a predetermined period.

[118] From the employer's point of view, the process of paying the wage is the same as the process of using a credit card. From the employee's point of view, the wage for the part-time work is paid immediately. In this case, a card fee is charged to the employer, i.e., the card user. According to the present disclosure, the prescribed wage may be exactly provided to the employee in real time, thereby reducing an amount of unpaid money. Tax payment calculations involving the wage payment are performed transparently. Any behavior intended for tax evasion, i.e., a behavior of reporting that he/she paid the wage of a part-time employee even though the employee has not been hired, may be

excluded. Thus, the government may promote the use of the card according to the present disclosure by providing benefits on card fees or tax benefits to employers using the card according to the present disclosure.

5 [119] In the business method according to the present disclosure, a product is designed to be beneficial to both the employer and the employee. The hourly rate is paid immediately to the employee, while the employer is charged for the payment later. In this manner, demands of both parties may be satisfied.

10 [120] Accordingly, the socially disadvantaged facing financial problems, such as daily subsistence workers and part-time workers, may be protected. The risk of chronic problems of the temporary labor market, such as delayed wage payment and unpaid wage, may be reduced. Wage payment in the temporary labor market may be
15 made transparent by applying a virtual hybrid credit card function to the business method. A new business area using credit cards may be created. In this manner, effects contributing to the good of society may be obtained.

[121] According to the present disclosure, the time that the
20 employee has worked for the employer needs to be determined in real time and be sent to the card company so that the employee is paid the wage in real time. In this regard, information regarding, for example, the name, the daily base wage, and the payment account is sent to the card company. The time that the
25 employer has worked and information by which the employee is

identifiable are sent from the server of the employer. Then, the server of the card company pays the wage immediately.

[122] A variety of methods may be used to determine the work time of the employee. The employee sends a message using an application installed in his terminal in order to request that his arrival at the workplace be determined. The location of the GPS receiver disposed in the terminal (e.g. a smartphone) is determined. A message confirming the arrival and the time of arrival are stored in the server of the card company. At the time of leaving the workplace, corresponding information is determined in the same method and stored in the server of the card company.

[123] When it is determined that the employee has left the workplace, the time that the employee has worked is calculated. The wage is transferred to the employee account previously registered. At the same time, payment is performed using the employer's card. Information regarding, for example, the paid time, the amount of money, and the work time is transmitted to the employer terminal. To determine the time of arrival and the time of leaving, determination by both the employer and the employee is required.

[124] In the absence of a smartphone, the employee may be instructed to call a specific number. Secret information generated by operating a password generator, such as an OTP generator, may be input through the telephone. The OTP generator

may be fixedly disposed in the shop at which the employee works in order to determine the work time.

[125] In addition, a clock, also known as a dumb clock, may be disposed in the shop. The dumb clock is a clock, the time of which is unchangeable, and only continuously creates or displays the time (or a specific number or random numbers). The employee may be instructed to call the specific number and input the number currently displayed on the dumb clock.

[126] The OTP or the dumb clock is intended to show that the employee starts or finishes working in the shop. The OTP or the dumb clock may be used together with a smartphone. That is, the number displayed on the OTP or the dumb clock disposed in the shop may be transmitted using the smartphone so as to show that the employee arrives at and leaves the workpiece. The times of arrival and leaving may be used as data by which the wage to be paid is determined.

[127] FIG. 7 illustrates an example in which coins are paid according to the present disclosure. After the number and amount of coins to be issued are determined, the coins are encoded in order to prevent forgery and falsification and then are distributed. A predetermined amount of coins are issued and are only allowed to be exchanged with cash in a 1:1 ratio or a predetermined ratio. When the coins are exchanged after having been used for payment, the coins are recovered.

WHAT IS CLAIMED IS:

1. A part-time work management system, wherein the system (11) is connected to an employer terminal (12) and an employee
5 terminal (13) through a network,

wherein, when the employee terminal (13) requests that start and end points of a work and/or start and end points of a break be determine, a contract label is transmitted to the system (11) through the employee terminal (13) and, when the contract
10 label is the same as a predetermined contract label, a timer module (28) counts the start and end points of the work and the break,

a wage to be paid according to a counted work time is paid from an amount of money prepaid through the employer terminal
15 (12), and a contract fulfillment determination module (27) determines the wage to be paid according to the counted work time by referring to a working conditions database (23) in which contract conditions approved and agreed by the employer terminal (12) and the employee terminal (13) are stored and transmits
20 information regarding the wage to be paid, together with personally identifiable information and information regarding start and end points of the work time and start and end points of a break time, to a payment management module (29),

a payment management module (29) may transfer the wage to
25 an employee account via a payment system (14).

2. The system according to claim 1, wherein functions of the employee terminal (13), except for functions necessary to the work, are limited by the mobile phone function limiting module (30) during the work time.

3. The system according to claim 2, wherein the system (11) instructs either the employer or the employee accessed the system (11) through either the employee terminal (13) or the employer terminal (12) to upload either a recruiting post or a job seeking post, and

the post is deleted by the system after passage of a predetermined time or either recruiting or job seeking is accomplished, so that either latest recruiting information or latest job seeking information is posted.

4. The system according to claim 3, wherein the system (11) comprises a contract fulfillment assistance module (26),

wherein, when both parties are attempting to make an agreement on the work time and a work pattern, the contract fulfillment assistance module (26) makes a proposal on matters that the both parties have to agree according to business type and time without violating laws and helps the both parties make an agreement on the matters, thereby reducing a risk of conflicts.

25

5. The system according to claim 4, wherein the system (11) is entrusted with a wage payment account of the employer, manages the wage payment account by storing the account number and details of the wage payment account in a deposit database (24),
5 and allows a wage to be paid through the wage payment account using a payment system whenever wage payment is required.

6. The system according to claim 5, wherein the contract label comprises one from among a password, a figure, a barcode,
10 an input pattern, a two-dimensional barcode, a near field communication identifier, a beacon, and a fingerprint.

7. The system according to claim 6, wherein the contract label comprises a picture taken together with an indicator
15 disposed in a shop, and

the system (11) counts the start and end points of the work and/or the start and end points of the break by recognizing a number on the indicator.

20 8. The system according to claim 6, wherein the employee terminal (13) determines that the employee is located in the shop using the beacon and the near field communication identifier disposed in the shop, and

the system (11) receives a picture transmitted from the
25 employee terminal (13), determines the time of the transmission

of the picture, determines whether or not the picture is taken by the employee by recognizing the face of the employee in the picture, and instructs the timer module (28) to count the start and end points of the work and/or the start and end points of the break.

9. The system according to claim 1, when the payment management module(29) request that the coin server(51), pay the wage, payment to a coin server(51),

the payment management module(29) provides the information containing user identification information, hourly rate, and actual work time information, together with an amount of money requested to be paid, may be provided to the coin server (51 and the the information may be stored in a distributed data method using a blockchain.

10. The system according to claim 9, when employee terminal (13) request the payment, the exchange module (62) may send a payment request to a bank so that a coin to cash ratio is 1:1 for a predetermined amount of money or more.

11. The system according to claim 10, wherein the coin server (51) requests that the employer terminal (12) previously purchase coins to be paid to the employee.