## REPUBLIC OF SOUTH AFRICA PATENTS ACT, 1978

# APPLICATION FOR A PATENT AND ACKNOWLEDGEMENT OF RECEIPT

[Section 30 (1)-Regulation 22]

		Official Application No.	Applicant's or Agent's Reference
21	01	2022/05425	2013LPS
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Certified priority document(s)

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	7.	Translation(s) of the priority document(s)					
	8.	Assignment of priority rights					
	9.	A copy of the Form P.2 and the specification of S.A Patent Application (if applicable).					
	10.	A declaration and power of attorney on Form P3					
	11.	Statement on the use of indigenous Biological Resource, Genetic	c Resource, Traditional Knowledge or Use on Form P26				
Х	12.						
Χ	13.	Other Supporting Document					
74	74 Address of Service:						
	urrey Ave H AFRIC	enue, Randburg, 2194 A					
Date	d this 17	7th day of May 2022	RECEIVED				
		,	Official Date Stamp				
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		ature of Applicant(s)	Registrar of Patents				
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address for service as proof of lodging.

### FORM P2 REPUBLIC OF SOUTH AFRICA REGISTER OF PATENTS PATENTS ACT, 1978 Official application No. Lodging date: Provisional Acceptance date 01 22 47 21 2022/05425 International classification Lodging date: Complete Granted date 51 G06N 23 2022/05/17 71 Full name(s) of applicant(s)/Patentee(s): Dr. Radha Tiwari Associate Professor, Department of Business and Management Institute of Advanced Research, The University for Innovation, Koba Institutional area, Gandhinagar, Gujarat, 382426, India Prof. Dr. Rashmi Gujrati Prof- Dean, CT University, Ludhiana, Punjab, 142021, India Dr. Hayri Uygun Recep Tayyip Erdogan University, Rize, 53100, Turkey Dr. Sushil Kalyani NIIT UNIVERSITY, Neemrana, Rajasthan, 301705, India

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Priority claimed: Country Number Date						e	
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SOUTH AFRICA							
Reference No. 2013LPS							
61 Patent of addition No. Date of				Date of any change			
Fresh application based	on.		Date of a	ny change			
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# REPUBLIC OF SOUTH AFRICA PATENTS ACT, 1978

# APPLICATION OR REQUEST TO THE REGISTRAR (REGULATION 39)

OFFICIAL APPLICATION NO.		PPLICATION NO.			AGENT REFERENCE
21	01	2022/05425			2013LPS
IN TH	E NAM	E OF:			
71	Prof. D Dr. Hay Dr. Sus Dr. Gya Dr. She Dr. Silk Keenik Dr. Nee Prof. Sa Dr. Tris Dr. Ror Dr. Tee Dr. V M	dha Tiwari r. Rashmi Gujrati yri Uygun shil Kalyani anesh Jain ar Singh selan Misra sy Vigg Kushwah a Arora setha Mahadev aumi Roy sona Kumara shu Sharma mica Bhat sena Singh d Bansal amesh Chandra Panda			
reque	st the fo	ne following section(s) 40 of the following:  cceptance of the application.	e Act and/or regulation(s	39 and 44 of the Pa	tent Regulations, the applicant hereby
Docur	ments, i	if any, lodged in support of the	request:		
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74		Surrey Avenue, Randburg, 219 FH AFRICA	4		17 May 2022  Submitted online by:  Signature of Applicant
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The a	bove ap	oplication or request is hereby	allowed/refused.		OFFICIAL DATE STAMP
Reaso	ons for	refusal of conditions of allowa	nce, if any:		
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					REGISTRAR OF PATENTS

### REPUBLIC OF SOUTH AFRICA PATENTS ACT, 1978

# **COMPLETE SPECIFICATION**

[Section 30(1) - Regulation 28]

OFFICIAL APPLICATION NO. LODGING DATE 22 2022/05/17

INTERNATIONAL CLASSIFICATION

51 G06N

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### TITLE OF INVENTION

A SYSTEM AND A METHOD FOR DECISION MAKING BASED ON BEHAVIOUR OF AN INDIVIDUAL



# REPUBLIC OF SOUTH AFRICA PATENTS ACT, 1978

# PUBLICATION PARTICULARS AND ABSTRACT [Section 32(3)(a) – Regulation 2291)(g) AND 31]

	OFFICIAL APPLICATION NO.	LO	DOGING DATE	ACCEPTANCE DATE				
21	01	22 2022/05/1	7	47				
-'	2022/05425	22 2022/00/1	'	71				
	INTERNATIONAL CLASSIFICATION			NOT FOR PUBLICATION				
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		FULL NAME	E(S) OF APPLICANT(S)	A				
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	14. Dr. Romica Bhat	
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16	6. Dr. V M Bansal	
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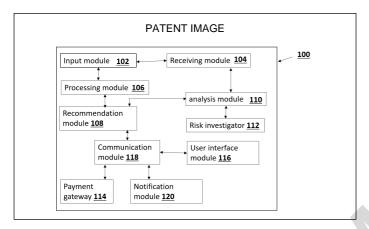
### EARLIEST PRIORITY CLAIMED

COUNTRY			NUMBER	DATE		
33		31		32		

### TITLE OF INVENTION

### 54 A SYSTEM AND A METHOD FOR DECISION MAKING BASED ON BEHAVIOUR OF AN INDIVIDUAL

A system (100) for developing a financial decision making strategy based on behaviour of an individual, comprises of: an input module (102) for collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual over a time period; a receiving module (104) for receiving financial behaviour of the individual based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual; a processing module (106) for processing the extracted pattern from the individual to create a financial profile of the individual; and a recommendation module (108) for suggesting a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.



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# A system and a Method for Decision Making Based on Behaviour of an Individual

## **FIELD OF THE INVENTION**

[0001] The present invention relates to a field of decision making systems. More particularly, the present invention relates to a field of decision making based on behaviour of an individual.

### **BACKGROUND OF THE INVENTION**

- [0002] Behavioural Economics (BE) has gained traction over the last decade. It is an area of study that explores why people take the decisions and then endeavours to formulate alternatives in which those decisions might be influenced.
- [0003] Behavioural economics is used to understand how individuals make decisions under conditions of uncertainty and risk.
- [0004] Recently, in the field of investment, its environment varies rapidly, which results in increase in risk of investment and expansion of an amount of investment. In such scenarios where continuous examination and expense evaluation is required, there is much need of rigorous evaluation, involving time, computation and mental agility. Rationality is required for such an examination and a business chance will be thrown away unless the examination is done properly.
- [0005] In conventional systems, judgement processes in business value evaluations made by respective business managers are not customized and are fixed which may not suit all the business or investment and may not be effective for all the users. Furthermore, such a situation may occur that different criterion of evaluation indicators used in respective business value judgements are delicately different from one another so that accurate comparative analysis can not be performed.

- [0006] Businesses in every industry must adapt to an increasingly competitive environment and execute in a clear, consistent, and efficient manner. Furthermore, the global nature of most industries greatly increases the complexity and difficulty of surviving on a day to day basis, let alone growing and prospering.
- Many chief financial officers (CFOs) fail to measure finance [0007] cost and performance in a rigorous way, such as the resources expended on finance, the costs by process and in comparison with other businesses in similar industries. Often, CFOs lack the information necessary to prioritize improvement initiatives, develop a compelling for such initiatives and measure performance business case improvement consistently. These shortcomings severely constrain the business, and lead directly to inefficiencies and waste due to unnecessary complexity, process exceptions, and customer dissatisfaction. At the same time, identifying specific processes to which improvements may be made can be very difficult, either because the business itself does not have the expertise to identify the processes or because the complexities of the business frustrate attempts to clearly delineate the processes to be improved.
- [0008] Even if the investment can identify one of the many processes that need to improve, the investment and how to improve the process or be able to identify a concrete and measurable improvement goal. Another difficulty exists in determining whether intermediate goals exist that should be reached along the way. As a result, businesses struggle to meet the demands of the modern global marketplace and fail to identify cost reduction opportunities for margin improvement to reach other important goals.
- [0009] Therefore, a need exists for an efficient and effective system and method to calculate expenses based on behaviour of the individual and suggest them a proper investment plan for earning profits from their savings.

[0010] The technical advancements disclosed by the present invention overcomes the limitations and disadvantages of existing and conventional systems and methods.

# **SUMMARY OF THE INVENTION**

- [0011] The present invention generally relates to a system and a method for developing a financial decision-making strategy based on behaviour of an individual.
- [0012] An object of the present invention is to provide an investment plan,
- [0013] Another object of the present invention is to recommend an investment program based on financial behaviour of an individual,
- [0014] Yet another object of the present invention is to calculate expenses of the user, and
- [0015] Yet another object of the present invention is to notify the individual about the selected investment plan.
- [0016] In an embodiment, a system for developing a financial decision making strategy based on behaviour of an individual, wherein the system comprises of: an input module for collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual over a time period; a receiving module connected with the input module for receiving financial behaviour of the individual based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual; a processing module connected to the input module for processing the extracted pattern from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile; and a recommendation module connected with the processing module for suggesting a customized investment plan, time required for

fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.

- [0017] In an embodiment, an analysis module is associated with the receiving module for real time calculation of the finances based on the pattern extracted to provide a net saving upon the expenditure.
- [0018] In an embodiment, a risk investigator performs a risk analysis of the investment plan based on studying the financial market and previous returns.
- [0019] In an embodiment, a payment gateway is linked with a user interface module for investing in the investment plan recommended to the individual.
- [0020] In an embodiment, the user interface module is associated with the recommendation module via a communication module for receiving notification of the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the investment plan is customized based on changes in the behaviour of the user.
- [0021] In an embodiment, a notification module is interconnected to the user interface module and the recommendation module for informing the individual about the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the notification module informs the individual about a selected contribution date for the contribution amount prior to selected contributed date.
- [0022] In an embodiment, the communication module is either a wired or a wireless medium for establishing communication between the user interface module and the recommendation module.
- [0023] In an embodiment, a method for developing a financial decision making strategy based on behaviour of an individual, wherein

the method comprises of: collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual by an input module for over a time period; receiving financial behaviour of the individual by a receiving module based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual; processing the extracted pattern by a processing module from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile; and suggesting by a recommendation module a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.

[0024] To further clarify the advantages and features of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof, which is illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are therefore not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail with the accompanying drawings.

### **BRIEF DESCRIPTION OF FIGURES**

[0025] These and other features, aspects, and advantages of the present invention will become better understood when the following detailed description is read with reference to the accompanying drawings in which like characters represent like parts throughout the drawings, wherein:

- [0026] **Figure 1** illustrates a block diagram of a system for developing a financial decision-making strategy based on behaviour of an individual, and
- [0027] **Figure 2** illustrates a method for developing a financial decision-making strategy based on behaviour of an individual.
- [0028] Further, skilled artisans will appreciate that elements in the drawings are illustrated for simplicity and may not have been necessarily been drawn to scale. For example, the flow charts illustrate the method in terms of the most prominent steps involved to help to improve understanding of aspects of the present disclosure. Furthermore, in terms of the construction of the device, one or more components of the device may have been represented in the drawings by conventional symbols, and the drawings may show only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the drawings with details that will be readily apparent to those of ordinary skill in the art having benefit of the description herein.

### **DETAILED DESCRIPTION:**

- [0029] For the purpose of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated system, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.
- [0030] It will be understood by those skilled in the art that the foregoing general description and the following detailed description are

exemplary and explanatory of the invention and are not intended to be restrictive thereof.

- [0031] Reference throughout this specification to "an aspect", "another aspect" or similar language means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, appearances of the phrase "in an embodiment", "in another embodiment" and similar language throughout this specification may, but do not necessarily, all refer to the same embodiment.
- [0032] The terms "comprises", "comprising", or any other variations thereof, are intended to cover a non-exclusive inclusion, such that a process or method that comprises a list of steps does not include only those steps but may include other steps not expressly listed or inherent to such process or method. Similarly, one or more devices or sub-systems or elements or structures or components proceeded by "comprises...a" does not, without more constraints, preclude the existence of other devices or other sub-systems or other elements or other structures or other components or additional devices or additional sub-systems or additional elements or additional structures or additional components.
- [0033] Unless otherwise defined, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this invention belongs. The system, methods, and examples provided herein are illustrative only and not intended to be limiting.
- [0034] Embodiments of the present invention will be described below in detail with reference to the accompanying drawings.
- [0035] **Figure 1** illustrates a block diagram of a system (100) for developing a financial decision-making strategy based on behaviour of an individual, wherein the system (100) comprises of: an input module (102), a receiving module (104), a processing module (106), a

recommendation module (108), an analysis module (110), a risk investigator (112), a payment gateway (114), a user interface module (116), communication module (118), and a notification module (120).

- [0036] The input module (102) for collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual over a time period. The input module (102) includes a receiver for receiving the financial details of the individual that are collected and are stored in a database.
- [0037] According to an embodiment, the database is either a cloud storage or a memory device. The memory device is either a RAM, a memory chip or any other storage device known in the art.
- [0038] The receiving module (104) is connected with the input module (102) for receiving financial behaviour of the individual based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual. The pattern is extracted based on the behaviour of the individual regarding previous transactions, investments, savings, expenditures, etc. Based on the account history and the current input details provided by the individual, a pattern is generated to clearly analyse the behaviour of the individual.
- [0039] The processing module (106) is connected to the input module (102) for processing the extracted pattern from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile.
- [0040] The pre-stored pattern includes patterns that are followed generally by the investors, and common people for a certain duration of time in order to obtain a recommendable savings based on their income. The data is collected from people belonging to different age group, living in different cities, having different levels of income and expenditure in form of a survey either through online or offline mode.

The average from the data collected from different groups of people is considered as a benchmark and stored as a pre-stored pattern in the database.

- [0041] The details obtained from the individuals through the input module (102) is compared to match with one of the patterns in the database and the pattern is extracted. Upon successful matching of the details, the corresponding pattern is obtained from the database.
- [0042] The recommendation module (108) is connected with the processing module (106) for suggesting a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created. The risk investigator (112) performs a risk analysis of the investment plan based on studying the financial market and previous returns.
- [0043] According to an embodiment, the individual having a low savings and high expenses are provided with plans having high returns with low amount of investment for a desired period of time and the individual with high savings are provided with plans involving investing a good amount either monthly or annually to receive high returns.
- [0044] According to an embodiment, the recommendation module (108) provides the details of investment to the individual and suggests a time duration of investment involving start and end date, principal amount and maturity amount and investment having low risk based on ranks. The investment with high risk is ranked least and with low risk is ranked highest.
- [0045] The risk investigator (112) analyses the market risk associated with the investment by analysing previous investment risks and rank them based on their risks in either an ascending or a descending order.
- [0046] According to an embodiment, upon providing the risk rate, the investment plans are selected to be arranged sequentially with an order of decreasing the risk rate such that the investment plan with

low risk is marked as "low risk" and positioned at top of the list and the investment plan having high risk is marked as "high risk" and positioned at bottom of the list.

- [0047] The analysis module (110) is associated with the receiving module (104) for real time calculation of the finances based on the pattern extracted to provide a net saving upon the expenditure. The individual provides information about the real-time and predicted finances through the input module (102) that is received by the receiving module (104) and calculate the net expenditure and the remaining savings so that the individuals can plan their expenses accordingly and have an idea of their predicted approx. savings.
- [0048] According to an embodiment, the individual through the input module (102) continues to add each and every expense that happens in a day. The analysis module (110) upon performing real-time calculation provides the revised savings based on the recently provided expenses.
- [0049] The payment gateway (114) is linked with the user interface module (116) for investing in the investment plan recommended to the individual. The payment gateway (114) is either through net banking, or UPI or through cards. The individual upon selecting an investment plan from the recommended plans makes a payment on the selected date of a definite amount through the payment gateway (114). The payment gateway has account details of the selected investment plan.
- [0050] The user interface module (116) is associated with the recommendation module via a communication module (118) for receiving notification of the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the investment plan is customized based on changes in the behaviour of the individual.
- [0051] According to an embodiment, the user interface module (116) comprises of a monitor and a keyboard. The user interface module

- (116) is selected from but not limited to smartphone, mobile phone, laptop, or other such known in the art.
- [0052] The communication module (118) is either a wired or a wireless medium for establishing communication between the user interface module (116) and the recommendation module (108).
- [0053] According to an embodiment, the communication module (118) is selected from but not limited to Wi-Fi, Bluetooth, ZigBee or other known in the art.
- [0054] The notification module (120) is interconnected to the user interface module (116) and the recommendation module (108) for informing the individual about the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the notification module (120) informs the individual about a selected contribution date for the contribution amount prior to selected contributed date.
- [0055] According to an embodiment, the notification module (120) is preferably a messaging module that sends a message regarding the content and title of the advertisement if the viewed content is blacklisted later.
- [0056] According to an embodiment, if the selected investment plan has a monthly contribution amount of 3000 on 5<sup>th</sup> of every month based on the financial behaviour of the individual for a tenure of 5 years, then the same is informed to the concerned individual before 1-2 working days such that the individual is aware of the transaction or auto-withdrawal which is selected by the user. The interest that is earned periodically is communicated to the individual and is reflected in the account.
- [0057] **Figure 2** illustrates a method (200) for developing a financial decision-making strategy based on behaviour of an individual, wherein the method comprises of:

Step (202) discloses about collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual by an input module (102) for over a time period;

Step (204) discloses about receiving financial behaviour of the individual by a receiving module (104) based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual;

Step (206) discloses about processing the extracted pattern by a processing module (106) from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile; and

Step (208) discloses about suggesting by a recommendation module (108) a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.

[0058] According to alternate embodiments, a reward may be provided based on successful completion of the investment.

[0059] The drawings and the forgoing description give examples of embodiments. Those skilled in the art will appreciate that one or more of the described elements may well be combined into a single functional element. Alternatively, certain elements may be split into multiple functional elements. Elements from one embodiment may be added to another embodiment. For example, orders of processes described herein may be changed and are not limited to the manner described herein. Moreover, the actions of any flow diagram need not be implemented in the order shown; nor do all of the acts necessarily need to be performed. Also, those acts that are not dependent on other acts may be performed in parallel with the other acts. The scope of embodiments is by no means limited by these specific examples.

Numerous variations, whether explicitly given in the specification or not, such as differences in structure, dimension, and use of material, are possible. The scope of embodiments is at least as broad as given by the following claims.

[0060] Benefits, other advantages, and solutions to problems have been described above with regard to specific embodiments. However, the benefits, advantages, solutions to problems, and any component(s) that may cause any benefit, advantage, or solution to occur or become more pronounced are not to be construed as a critical, required, or essential feature or component of any or all the claims.

### **CLAIMS:**

- 1. A system (100) for developing a financial decision-making strategy based on behaviour of an individual, wherein the system comprises of:
- an input module (102) for collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual over a time period;
- a receiving module (104) connected with the input module (102) for receiving financial behaviour of the individual based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual;
- a processing module (106) connected to the input module (102) for processing the extracted pattern from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile; and
- a recommendation module (108) connected with the processing module(106) for suggesting a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.
- 2. The system as claimed in claim 1, wherein an analysis module (110) is associated with the receiving module for real time calculation of the finances based on the pattern extracted to provide a net saving upon the expenditure.
- 3. The system as claimed in claim 1, wherein a risk investigator (112) performs a risk analysis of the investment plan based on studying the financial market and previous returns.

- 4. The system as claimed in claim 1, wherein a payment gateway (114) is linked with a user interface module (116) for investing in the investment plan recommended to the individual.
- 5. The system as claimed in claim 1, wherein the user interface module associated with the recommendation module via (118)for communication module receiving notification of the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the investment plan is customized based on changes in the behaviour of the user.
- 7. The system as claimed in claim 1, wherein a notification module (120) is interconnected to the user interface module (116) and the recommendation module (108) for informing the individual about the recommended investment plans, risk involved, maturity date of the investment plan, amount to be contributed and returns to be received upon their maturity based on the financial behaviour of the individual, wherein the notification module (120) informs the individual about a selected contribution date for the contribution amount prior to selected contributed date.
- 8. The system as claimed in claim 5, wherein the communication module (118) is either a wired or a wireless medium for establishing communication between the user interface module (116) and the recommendation module (108).
- 9. A method (200) for developing a financial decision-making strategy based on behaviour of an individual, wherein the method comprises of:

collecting details of either a financial investment, or an income, or an expenditure or a combination thereof of an individual by an input module (102) for over a time period;

receiving financial behaviour of the individual by a receiving module (104) based on the collected details, wherein a pattern is extracted from the collected details to understand the behaviour of the individual;

processing the extracted pattern by a processing module (106) from the individual to create a financial profile of the individual, wherein the extracted pattern is compared with a set of pre-stored parameters for determining a financial position of the individual to create the financial profile; and

suggesting by a recommendation module (108) a customized investment plan, time required for fulfilling the investment, monthly investment required to accomplish the investment, returns and risk associated with the plan based on the financial profile created.

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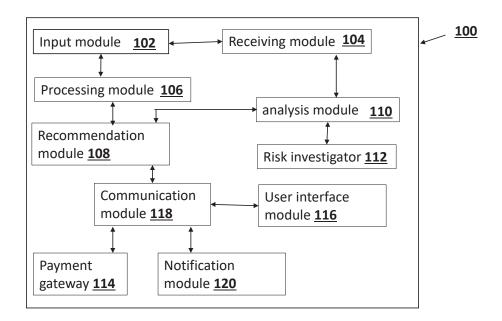


Figure 1

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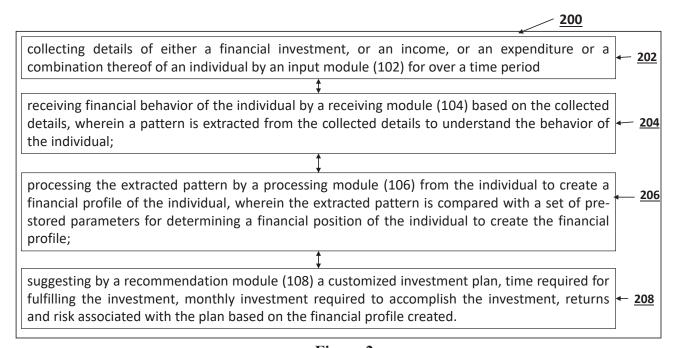


Figure 2