SPARK AI

WHITEPAPER

VERSION 1

I.INTRODUCTION

Artificial Intelligence has changed our lives almost entirely by improving human's health, safety and… Unlike in movies, there's no flying robots up in the skies. And while the use of AI must be accepted and solved, their bigger potential, beside others such as safe driving, help children with their learning, open and upgrade people's lives. In reality, helpful applications of AI in schools, houses and hospitals, have developed massively. Universities create divisions to study AI, and technology companies like Apple, Facebook, Google, IBM, Microsoft spend a lot to find different usages of AI which they suppose important to their future. Furthermore, Hollywood also uses technology to bring pessimistic thoughts of AI to the screenplay. The inventions based on computers, voice recognizations, natural language analizing have given them reasons to change and renew, while advancements of science and technology is happening in related aspects. AI is also changing how people interact with technology. Many people have become familiar with touching and talking to their smartphones. Future relationships between human and machines will be more decorated, smooth and more personalized than ever when AI systems learn how to adapt to personal characteristics and purposes. These applications using AI will help bringing happiness, warning them of upcoming threads, and providing services when needed or wanted.

The idea of building an AI program first came in November 1950, when the British scholar Alan Turing consider the problem of "Can computers think?". In order to answer this question, he gave the definition of "the copy test" which is later widely know as "The Turing test". The test is conducted as a game. There are 3 subjects for the game (2 humans, 1computer). One human (interrogator) will sit in a separate room from other 2 subjects. This subject will ask questions and receive answers from the other human and computer. In the end, if the interrogator can't distinguish which answers are from human, which are from computer then we can say the computer is able to "think" like humans.

From 1950 – 1965, scientists such as John McArthy, Marvin Minsky, Allen Newell and Herbert Simon together with students had written codes for computers to solve math problems, prove theories and is able to speak English.

Some achievements of this particular time can be listed are: Samuel's Chess playing program; Newell & Simon's reasoning program; Gelernter's program for proving graphical theories.

In the 60s, studies on AI mainly focus on knowledge performing and man-machine communication by natural languages. However, all of them failed for advancements of computer science had not reached the point where they are possible.

Until 1997, after the historical chess game between Garry Kasparov with IBM's DeepBlue, the hope of AI was ressurected.

In 2015, the development of cloud computing is at acceptable cost, with a variety of data, developing tools mostly being free or cheap have supported researchers in many ways. Therefore, studies of learning technology for computers, also called neuron systems, became moderately cheap where it once was extremely expensive.

All of those had turned the division of AI grouping lots of major enterprises to join the research, develop and opened the era for Artificial Intelligence. Some notable examples are:

Google purchased AI company DeepMind with 400 million USD – considered one of the biggest trade on the field of AI. Google DeepMind has just built an AI project for the London's subway system, using the neuron system to store data and browse informations to solve incidents. Google has also presented TensorFlow learning system being free for everyone. The mechanic of this system can be found in sound & image recognition technology and other translation applications.

Facebook is using AI technology to help the blinds "see" through an application on iOS. Besides, this technology is also used by Facebook to create detailed map of populations and internet users around the world. The purpose of this is to help the brand operate the project of bringing **Internet** to rural areas. Facebook also owns the deep-learning AI technology used to study users' behavior. In 2010, Facebook had presented the face recognition technology indentifying people on photos posted on social networks.

Apple purchased Vocal IQ to develop Siri further, also to use the voice recognition program from Vocal IQ. Vocal IQ is the author of the voice controlling technology on General Motors' models, allowing drivers to turn on of off functions on their cars by voice commands.

Elon Musk cooperating with many huge technology companies such as Amazon, LinkedIn and PayPal to develop open source Artificial Intelligence. This free project help developing AI serving people's need.

Microsoft has the project of Oxford help analizing users' behaviors, voices, expressions and face through API. Microsoft also presented Future Decoded allowing developers to access facial expression recognition.

IBM is famous for Watson (the computer system being able to answer questions usiong natural languages), IBM using AI to analyze scenarios and meaning of photos, videos, messages and sentences. In 2011, Watson won the Jeopardy, a quiz game show aired in the United States, excellently beaten other human contestants. Not only stoping there, “Doctor” Watson also has about 200 million pages of data (about 1 million books), 16 Terabytes (16 thousand billion bytes) of memory, and capable of computing 80 Teraflops per second. This "doctor" also has 2880 micro-computing processors called POWER7 from IBM. Each of these processors has 4 cores with about 1,2 billion transitors, total of about 3500 billion transitors, 35 times more neurons than a human owns. “Doctor” Watson has enough power to browse 1,5 million records at the same time, including test results, and provide options for doctors in the matter of seconds. Nowadays, many hospitals in Thailand, India and China are starting to bring Watson into computer syustems to serve the purposes of diagnosing and curing.

Until now, AI has played a major part in helping people saving manpower, accelerate automation and computerization of the economy with considerably cheap prices. According to the new reports from the accounting company PwC, global GDP will be increasing by 14% in 2030, with the help of AI.

II. SPARK AI PROJECT

What is Artificial Intelligence?

The are many definitions around the world of AI (Artificial Intelligence)

• According to Wikipedia, Artificial Intelligence is a type of intelligence run by any man-made system. This term is used to describe computers with undefined purpose and the science aspect studying theories and applications of Artificial Intelligence.

• Bellman (1978) defined: AI is the automation of actions adapting human's will, such as making decisions, solving mathematic problems…

• Rich anh Knight (1991) said: AI is the science studying how to make computers do human's work better than itself.

Each definition makes its own point, which are partly correct, but to simplize them, we can understand that AI is a science of computers. It builds a strong theoretic base and can apply in automations of intelligent behaviors. It helps computers having human's intelligences such as: being able to think, solving problems, communicating, learning and adapting.

III. SPARK AI TOKEN

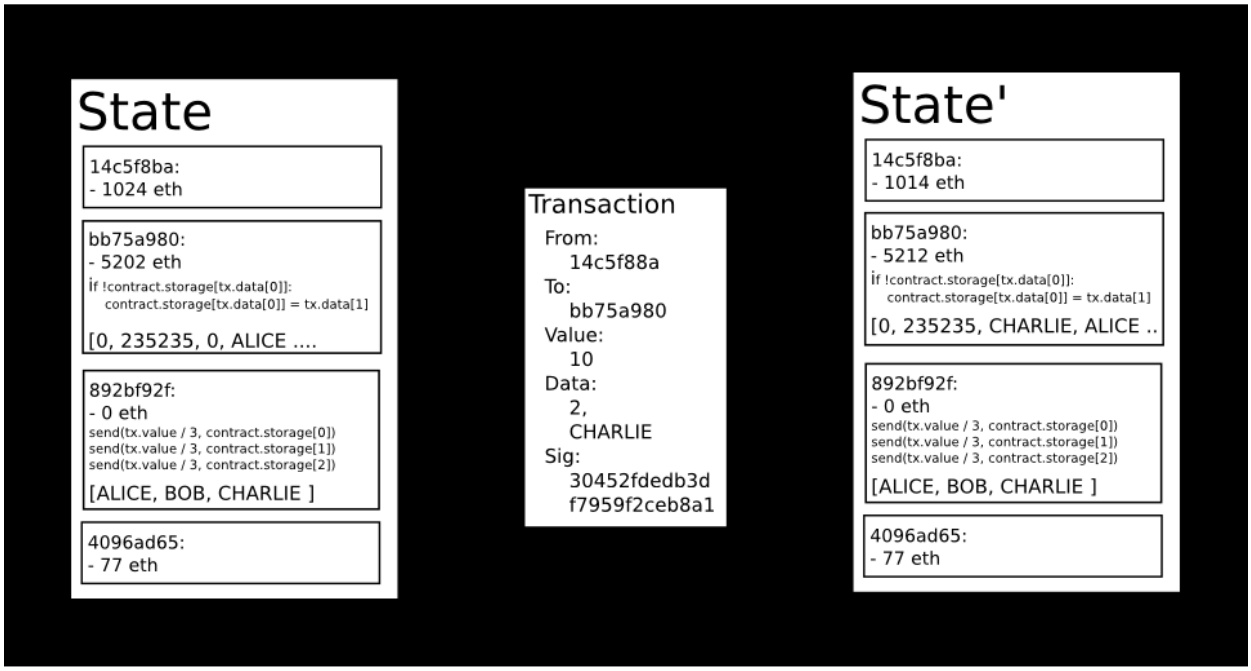
The **SPARK AI** token is a decentralized cryptocurrency based on the Ethereum blockchain platform and is not controlled by any central authorities.
SPARK AI token is the open source cryptocurrency, using advanced blockchain technology.
AI is the symbol of **SPARK AI** token.
The intent of AI is to create an alternative protocol for building decentralized applications, providing a different set of tradeoffs that we believe will be very useful for a large class of decentralized applications, with particular emphasis on situations where rapid development time, security for small and rarely used applications, and the ability of different applications to very efficiently interact, are important. AI does this by building what is essentially the ultimate abstract foundational layer: a blockchain with a built-in Turing-complete programming language, allowing anyone to write smart contracts and decentralized applications where they can create their own arbitrary rules for ownership, transaction formats and state transition functions. A bare-bones version of Namecoin can be written in two lines of code, and other protocols like currencies and reputation systems can be built in under twenty. Smart contracts, cryptographic "boxes" that contain value and only unlock it if certain conditions are met, can also be built on top of the platform, with vastly more power than that offered by Bitcoin scripting because of the added

Essentially, a message is like a transaction, except it is produced by a contract and not an external actor. A message is produced when a contract currently executing code executes the CALLopcode, which produces and executes a message. Like a transaction, a message leads to

the recipient account running its code. Thus, contracts can have relationships with other contracts in exactly the same way that external actors can.

Note that the gas allowance assigned by a transaction or contract applies to the total gas consumed by that transaction and all sub-executions. For example, if an external actor A sends a transaction to B with 1,000 gas; B consumes 600 gas before sending a message to C; and the internal execution of C consumes 300 gas before returning; then B can spend another 100 gas before running out of gas.

AI State Transition Function



The AI state transition function, APPLY(S,TX) -> S' can be defined as follows: