Concept and Patents announced for *Sky Infrastructure*

05.31.2019. Tokyo - A.L.I. Technologies (Abbr.: A.L.I., Main office: Minato-ku, Tokyo, President: Daisuke Katano) has announced today the concept for the *Sky Infrastructure* and a series of related patents for the purpose of the safe implementation of drones in society. Minoru Nakahata, a patent attorney at iPlab Startups, supports patent strategies for numerous startups, states:

"The patent group relating to the "Sky Infrastructure" concept advocated by A.L.I. company is superior in originality regarding individual technology, and each patent is calculated backward from the vision realized by "Sky Infrastructure". Is innovative as it is a multi-faceted "patent group". In the future, as technology that uses the sky accelerates more and more, I am confident that the patent group owned by A.L.I. will become the base technology of the infrastructure. "

● What exactly is *Sky Infrastructure*?
In recent years, there has been growing problems of infrastructure deterioration and a lack of human resources to address these problems. As a result, the need for solutions such as inspection drones has grown dramatically. The domestic drone market is projected to be ¥250 billion by 2024, and the potential of the global market is said to be over ¥18 trillion.

Despite the focus on the positive implications of drones in society, there are concerns about the risk of drone accidents and crime in the early implementation in society.

In order to fundamentally solve these problems with the technology, we are working specifically on the infrastructure that will support the use of drones in society, safely and efficiently.

The outline of the initiative is as follows:

[Construction of Multiple Communication Network Control System by Utilizing Blockchain]
By using blockchain technology, it's possible to authenticate individual drones (and future manned aircraft) and manage the location information and flight status of certified aircrafts, all while securing stable information security. In addition to LPWA and 4G, we will maintain the systems extendibility to be compatible with 5G in the future.

<Group of related patents>

- Position information of certified aircraft, flight status management
- Data collection management
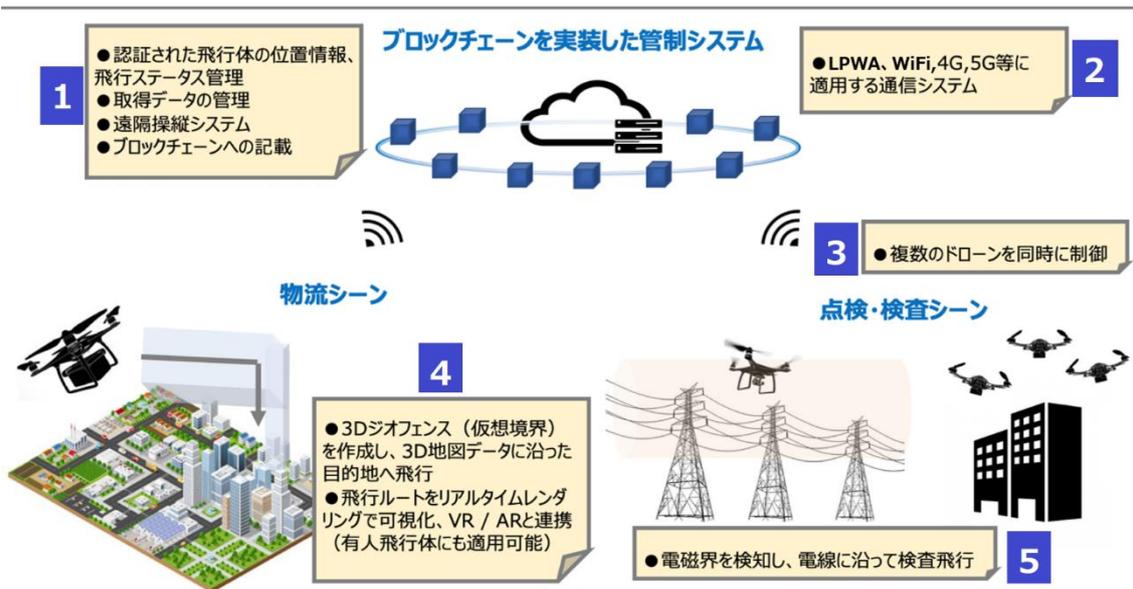- Remote control system
- Blockchain registration

[Technological innovation by social implementation]

In order to respond to the inspection and examination needs, a system is under development to visualize automated flight routes to optimize efficiency and safety of inspections.

<Related acquired and pending patents>

- 3D Geofence (Virtual Boundary), System to follow 3D Map data to destination
- A VR/AR compatible system that visualizes flight routes by rendering in real-time
- Electromagnetic field detection for inspection flights
- Other

"空のインフラ" 特許群

ブロックチェーンを実装した管制システム

1
●認証された飛行体の位置情報、飛行ステータス管理
●取得データの管理
●遠隔操縦システム
●ブロックチェーンへの記載

2
●LPWA、WiFi,4G,5G等に適用する通信システム

3
●複数のドローンを同時に制御

物流シーン

点検・検査シーン

4
●3Dジオフェンス（仮想境界）を作成し、3D地図データに沿った目的地へ飛行
●飛行ルートをリアルタイムレンダリングで可視化、VR / ARと連携（有人飛行体にも適用可能）

5
●電磁界を検知し、電線に沿って検査飛行

1- Position information of certified aircraft, flight status management, data collection management, remote control system, blockchain description

2- Flexible communication system

3- Simultaneously control multiple drones

4- 3D Geofence, finds destination using 3D map data, flight path visualization rendered in real time

5- Electromagnetic field detection

With regard to the above technologies, except for those under development, most of them, such as application to general structures and logistics, have already been developed to the level that can be put into practical use, and services have been launched.

In the future, A.L.I. Technologies will continue to work on various technological developments aiming for the early realization of *Sky Infrastructure*.

<Overview of A.L.I.>

A.L.I.'s mission is to "innovate in any space and continue creating the future society". We aim to develop air mobility such as hover bikes, products utilizing block chain technology, development of drone related products and engage in technical consultancy. Most recently, our achievements include the technology research contract for the drone highway concept from Tokyo Electric Power Holdings, forged an alliance with FAI (International Aviation Federation) for the World Drone Racing Competition, and we are currently working with Minden Power to develop a P2P power transaction system that utilizes blockchains.

A.L.I. will continue to innovate by developing products that creatively utilize technologies such as drone, blockchain, and AI.

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