The emergence of flying robots:
Drones in rural areas of developing countries

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Abstract

Emerging technologies as the drone can provide opportunities to improve important activities for residents and business in rural areas. However, technical challenges, as well as social challenges arises to implement such novel approaches in rural Africa. This paper therefore introduces how drones can provide benefits in rural areas of developing countries, while dealing with the challenges and risks which are encountered.

1 Introduction

Drones are becoming customary in the developed world. More and more research has been done on those unmanned aerial vehicles (UAVs) by which certain problems are tackled with novel approaches. In the context of international development, businesses are trying to expand this potential information and communication (ICT) service in new meaningful application fields [1].

When mentioning a drone, at first glance, people immediately think about developed countries. But, as Leonard noted, drones also emerge in the developing world [2]. In principle, drones can be used as an agricultural robot or machine to help farmers by collecting data on the status of crops. Additionally, they could deliver medical supplies in rural areas, or aiding in search and rescue efforts.

However, in practice, the local people encounter certain challenges. It appears that in a low-resource development context, technological innovations are hard to implement [3]. In order to tackle the challenges, companies need to put their heads together to come up with a suitable solution. By comparing strategies of companies, and unveiling opportunities of the drone, this device should become usable all over the world [1].

2 Research

This paper focuses on the drone and how it could benefit residents, farmers and businesses in rural areas. The principles and practices of the UAVs are introduced. Moreover, social and technical challenges are discussed, as well as the promises manufacturers, political scientists and other stakeholders make.

2.1 Principles

An UAV is capable of flying with the help of a remote ground control system (GSC). As the name suggest, an unmanned aerial vehicle is an aircraft without a human pilot on board. Moreover, drones can be equipped with different state of the art technology such as infrared cameras or GPS.

2.2 Practices

While drones originated mostly in military applications, their use is expanding to scientific, recreational, agricultural, and other applications. For example, a prominent application field is applying a drone to conduct water sampling [4]. Moreover, in Europe, drones are used to control bird damage to wine grapes [5]. In context of rural Africa, this can also be applied to protect the crops from dangers. Besides that, as previously mentioned, drones could be used to collect data on the status of crops, but also for delivering medical supplies, or aiding in search and rescue efforts [2].

2.3 Challenges

To take into account the low-resource context, it is difficult to implement a successive innovative device in developing countries [3]. For example, in a business in Europe, many challenges come across while finishing a project. In fact, those threats researchers also encounter in a larger extend while facing low-resource development context projects in developing countries, especially on the aspect of social differences, literacy, and culture. Therefore, while implementing such a device, Human computer interaction (HCI) is an important issue of how the system can be appropriately designed [6].

2.4 Risk of technology

A major risk of applying drones in rural areas is caused by the lack of communication infrastructure [2]. Another technological challenge would be the maintenance of the device, as repairing a drone could require some expertise.

2.5 Promises

Despite the challenges and risks which are encountered, I am still positive about the outcome. Manufacturers and companies invent strategies which guide technology development to address more meaningful application fields [1]. Besides that, political scientists suggest that drones may help patients in rural areas, as they can improve healthcare delivery in developing countries. Nevertheless, the key requirements in rural areas remain obscure. Therefore, research in the field is essential, so that drones become sustainable and feasible [3].

3 Conclusion

Drones are emerging in all kinds of application fields. In rural areas, drones could be used to collect data on the status of crops, to deliver medical supplies, or to aid in search and rescue efforts. However, it is difficult to implement applications in low-resource development contexts. Additionally, the maintenance of the device is endangered. Therefore, the feasibility and sustainability of a drone should be guaranteed.

References

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