

DRONES FOR DEVELOPMENT

USING DRONES TO ACCELERATE GHANA'S
DEVELOPMENT & GROWTH



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Drones for Development?

Using drones to Accelerate Ghana's Development & Growth

Penplusbytes - 2015

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Abstract

Ghana has over the years made tremendous progress towards achieving accelerated development with the use of ICT and one of such ICT landmarks is the introduction and usage of drones in Ghana. Also referred to as Unmanned Aircraft System (UAS), Unmanned Aerial Vehicle (UAV), or a Remotely Piloted Aircraft (RPA), drones have generally had a sinister image, mainly due to its use by the military to track enemy combatants. Drones currently have key roles in aerial photographs and videos, real estate photography, elections monitoring, remote sensing, automated package delivery, and search and rescue in humanitarian response. Its application has also been seen in the area of E-Commerce order fulfillment/delivery, Territorial surveillance, Vessel traffic monitoring and Vessel Surveillance. However, improvements in technology and lowering cost has led to the remodeling of drones to have development applications to contribute in growth in sectors such as health, agriculture, security, road safety and traffic management; natural resource management, aerial photography, 3-D mapping; search and rescue, among others. It is against this background that Penplusbytes hosted the 2nd Technology Salon dubbed: “Technology Salon – Accra: How Can Drones Accelerate Ghana’s Development?” where it was realized that drones will play important role in Ghana’s development due to its myriad of areas of applications in almost every aspect of national life. This publication seeks to highlights the importance of drones and the opportunities its usage may present to the Ghanaian economy and beyond.

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Introduction

Ghana is making tremendous progress towards achieving accelerated development with the use of ICT. One of such ICT landmarks is the introduction and usage of drones in Ghana. While the usage of drones for development in Ghana is new, it is evolving with significant potential to aid Ghana's development agenda in the area of health, agriculture, security, road safety and traffic management; natural resource management, aerial photography, 3-D mapping; search and rescue, among others. The question however, is how the country can make use of drones to circumvent key developmental challenges and fast-track the socio-economic development of the country?

It is against this background that Penplusbytes hosted the 2nd Technology Salon dubbed: "Tech-nology Salon –Accra: How Can Drones Accelerate Ghana's Development?" and was attended by 30 drone enthusiasts, Information Technology experts, Academia, Innovators, Journalists, Developmental partners, Donors, students, development experts, policy makers and other stake-holders. It was held at New Media Hub on the 10th of March, 2015. The 2 hour discussion was led by Kwami Ahiabenu II, the director of Penplusbytes with drone pilot David Kwame-na Bol-ton, the Technical Director of SoftTribe, Dr. Amos Caboh-Bah, an Energy and Environmental Engineer and Ag. Head of GEONETCast Center at the University of Energy and Resources (UENR) and Kwamena Hazel, a drone pilot at Aeroshutter as thought leaders.

The panel covered key issues and questions surrounding the prospects of drones for Ghana's development agenda, challenges of its use in the country and the development sectors that will benefit from the use of drones. The discussion also covered the business of drones, risks and challenges, privacy issues, local research and development of drones, education and training; and policy options, regulations, licensing and laws that should guide the rapid uptake of drones in Ghana.

Also referred to as Unmanned Aircraft System (UAS), Unmanned Aerial Vehicle (UAV), or a Remotely Pi-

loted Aircraft (RPA), drones have generally had a sinister image, mainly due to its use by the military to track enemy combatants. However, improvements in technology and lowering cost has led to the remodeling of drones to have development applications. Drones currently have key roles in aerial photographs and videos, real estate photography, elections monitoring, remote sensing, automated package delivery, and search and rescue in humanitarian response. Its application has also been seen in the area of E-Commerce order fulfillment/delivery, Territorial surveillance, Vessel traffic monitoring and Vessel Surveillance.

DRONES IN ACTION

<p>Road development progress monitoring Monitoring purpose Aerial Photographs Mapping Surveillance and security. Disaster emergency service management Monitoring of oil resources Anti -Piracy fight Photo journalism Spatial planning Land mapping for better natural resource Management Drones can be used in monitoring project im-plementation, monitoring and reporting ensur-ing value for money Fire fighting City Cleaning Tracking criminals and robbers on the high- ways a Document delivery Drones can be used for journalism in areas reporters cannot go directly. Agriculture investigation Road Accidents management Goods in transit tracking National security Ground-truthing regions Drones for Ecommerce order fulfil-ment/ delivery. Drones for Crime Scene Investigation internet service provision</p>	<p>Public health monthly report generation. Aerial surveillance, Security rapid response, Traffic watch, etc. News reporting Tourism promotion Local government as well as spatial analysis for land use and planning purposes. Mapping purposes Monitoring elections Location service Agriculture - soil science Surveillance, security and transport of items. border controls Emergency health supplies delivery for in- fec-tious diseases Job creation Monitor school attendance Coastal erosion monitoring Marine vessel traffic monitoring and security Vessel security to reduce pirate attacks and ambushes. Vessel traffic is easily managed. Mapping in real time of related services or ac-tivities” Mapping slums Transport of vaccines. Data verification/ground-truthing.” Vessel traffic monitoring Vessel surveillance</p>
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Prospects of drone technology for Ghana's development

There wasn't a doubt about the enthusiasm of the participants regarding the prospects of drone technology for Ghana's development and the possibility of its usage to accelerate Ghana's political and socio-economic development. In this direction, the discussions focused on the specific areas of Ghana's developmental framework that drone technology can be deployed. Examples of developmental sectors given ranged from the Forestry Commission, NADMO, Mining Commission, Fire Service, the Police Service, Water Resources etc. etc.

"Drones application can provide a way of providing relief in project areas that are very hard to reach, for instance development partners sometimes find it difficult to reach some portions of rural Ghana, and drone technology provides the opportunity for them to circumvent that challenges of reaching remote parts with medical supplies or relief items" said Kafui Prebbie of Techaide a participant at the event.

Focusing on the possibilities of the use of drones to improve the Agricultural sector, Edward Ayo from the International Fertilizer Development Center noted that drones could very well help cut down the cost in research and field investigations. To him, "drones can play useful roles in taking aerial pictures, mapping for irrigation purposes and also monitoring activities on large scale farms"

More on the possibilities of the use of drones in Ghana, David Kwamena Bolton of SoftTribe stated that there is an endless list of opportunities regarding the usefulness of drones and its application for development that Ghana and the developing world can take advantage of. He again stated that: "Currently, we are at a preparatory stage of using drones to monitor oil and gas pipelines in Nigeria for instance. Ghana can make gains in securing her territorial waters by applying drone technology to monitor the activities of illegal fishing and to protect itself from the even more dangerous risk of pirate activities."

Focusing on the Forestry Commission, Dr. Amos

Kabo-Bah explained that the Commission currently spends huge sums of money on forest guards to go to the field and collect data, sums of money he believes could be invested into the use of drones since they are more reliable and have greater reach. To him, the data collected by the forest guards are mostly unreliable as it's nearly impossible to verify some of the results presented.

Setbacks so far...

Discussions among participants on the challenges and regulatory issues surrounding the usage of drones in Ghana revealed that there is currently no specific law or regulations that are guiding the use of drones in Ghana, however the Ghana Civil Aviation with the Ministry of Transport and National Security actors have a very important role to play in this direction. Suggestion policy and regulatory options, David Kwamena Bolton argued that regulations should be developed such that it does not stifle innovations on the application of drone technology for national development. One key organization at the global who are working to help member states such Ghana to set its own national regulations is The International Civil Aviation Organization's (ICAO). ICAO's new Remotely Piloted Aircraft Systems (RPAS) Panel aims to deliver standards for unmanned aircraft to the organization's governing council in 2018. Recently ICAO issued a Manual on Remotely Piloted Aircraft Systems (RPAS). "The manual provides information relevant to the introduction of remotely piloted aircraft systems (RPAS) into non-segregated airspace and at aerodromes, including discussion of airworthiness, operations, licensing, air traffic management, command and control, detect and avoid, safety management, as well as legal and security issues. It is aimed at a worldwide audience within the civil aviation authorities, RPAS operators, communications service providers, manufacturers, air navigation service providers, aerodrome operators other airspace users and other stakeholders". Sharing their experiences with regards to purchasing and flying drones in Ghana, it came to light this process is fraught with challenges such as frustrations at the customs and bureaucracy attached to clearing the good from the ports and high costs of drones.

Some participants shared their encounter with the general public as they fly their drones: they talked about the look of awe on people's faces, the confusion and eagerness to know about the mini-helicopter look-alikes flying around. This experience, according to them shows that Ghana-ians will readily accept the use of drones on even a larger scale if the relevant authorities and stakeholders will commit to educating the masses on the relevance of drones'ousage to Ghana's development and growth.

Local research to support home-grown drone solutions?

On the potential of research and development of UAV in Ghana

Dr. Amos Kabo-Bah, from University of Energy and Natural Resources (UENR) spoke about the university work in not on-ly training students but working to develop and manufacture relevant drones, as well as its re-pairs. He added that UENR has built partnership with partners such as the Kwame Nkrumah University of Science of Technology (KNUST), All Nations University and also in the process of bring on board some Polytechnics in Ghana to share in the task of developing and building drones as well as training people in the usage of it.

Conclusion

In conclusion, drones are going to play a very important role in Ghana's development due to its myriad areas of applications in almost every aspect of national life, there is an urgent need for stakeholders including government to provide leadership in terms of progressive laws, polices and regulations to drive its rapid uptake backed with mass public education and promotion.

