Uttam Pudasaini
Nepal Flying Labs
Dispatches from the Flying Labs
Nepal: 2015 Earthquakes

Nepal experienced two major earthquakes on April 25 and May 12, 2015 at magnitudes of 7.8 and 7.3 respectively.

Number of people killed
As of 26 May 2015
8,673

Number of people injured
Source: UNHCR/Gov. of Nepal
21,952

Source: http://reliefweb.int/
Local Capacity

- Trainings
- Joint Projects
- Business Incubation
- MoUs

Gain local Govt. trust over Technology

- Social good projects
- New Business
- Research
PROJECTS
This map highlights the areas by Damage Grade present in 14 most affected districts of Nepal.
In Partnership with Medair
Drone based Hazard and Vulnerability Mapping

Settlement Area

800 m

2.5 Km
Traditional Manual Survey Based Boundary Mapping VS Aerial Survey
TRAININGS and WORKSHOPS
Use of UAV for Agriculture and Building Damage Assessment

6-9 September 2016
Venue: Kathmandu University

Partners:

- Kathmandu University
- Department of Urban Development and Building Construction
- ICIMOD, Medair
- Nepal Geomatics Engineering Society
- Robotics Association of Nepal
- Rural Development Initiative
HAVE A DRONE BASED BUSINESS IDEA?

Take part in our

Drones As a Service:
Business Accelerator program

Ideation Workshop: March 18, 2017
Venue: Nepal Engineer’s Association Office Pulchowk, Lalitpur

For further Information:
9851216126 (NFL), 9851166982 (NEA), 9860308879 (RAN)
www.nepal.werobotics.org/business
Uttam@werobotics.org

Win upto $8000 plus chance to get
Incubated by NEABIC
4. Final Pitching
FUTURE PLANS
1. Use of Aerial and Marine Robotics to Access Climate Change Impact on Glaciers
Consider this: The government, which has been in a state of flux since the erstwhile Maoist-led coalition demitted office in early May, mobilised the Nepali Army and NGOs with medicine and health personnel a good two and half months after the outbreak gripped the far-flung villages. Locals claimed that it was too little, too late to contain the epidemic. They blamed the government for empty promises. High-level officials, alleged the villagers, made a reconnaissance of the affected areas by chopper, getting absolutely no feel of the situation on Ground Zero. While, medicine was sent from the district headquarters via mules.

“It takes at least three days for the drugs to reach the affected areas,” said Ramesh Bista, a resident of Sunwanauli.

Krishna Hari Subedi, chief, District Public Health Office: Remoteness makes it difficult to transport the medicine on time,” he said.
3. Hazard and Vulnerability Mapping
4. Use in Infrastructure Development
LOCAL IMPACT
Uttam Puadasaini
uttam@werobotics.org

WeRobotics
Nepal.werobotics.org
Media Outreach and Advocacy
• Press meet with our Local Partner, Nepal Engineers’ Association
• Main Goal: To spread message about Social good Aspects of this technology
Drone Assisted Diagnostic and Precision Agriculture (DA-DAPA):
Case Studies on Kiwi Farm and Paddy Field in Central Nepal

Aastha Pudasaini1, Uttam Pudasaini1, Bidur P. Chauleagain1

1. Kathmandu College of Agriculture Sciences and Technology (KCAST), Province 1, Nepal. E-mail: kcast_email@kcast.org.np

ABSTRACT

DA-DAPA, acronymically known as drone assisted precision agriculture, refers to the utilization of drones in various precision agriculture practices. In the context of this study, drones are being used for monitoring the growth condition of kiwi trees, while optical sensors are deployed for monitoring the growth condition of rice crops. The drones are equipped with various sensor systems, including an optical sensor system, which allows for the monitoring of plant growth conditions. The data collected from these drones are analyzed to provide insights into the growth conditions of the crops, which can then be used to optimize agricultural practices.

INTRODUCTION

DA-Precision agriculture: a promising field that is suitable for very small-scale operations for small areas by using a variety of sensors mounted on the drone to monitor and analyze the growth status of specific crops. Drones are capable of delivering accurate and timely data on crop health, pest infestation, and nutrient deficiencies, among other parameters, which can be used by farmers to make informed decisions.

USAGES OF DIFFERENT SENSORS IN AGRICULTURE

* Hyperspectral imaging: used for monitoring plant health, disease identification, and nutrient deficiencies.
* Thermal imaging: used for monitoring plant temperature, pest infestations, and water stress.
* UV-VIS-NIR imaging: used for monitoring plant growth, leaf area, and biomass.

HYPERSPECTRAL IMAGING

Hyperspectral imaging is a remote sensing technology that captures the spectral reflectance of an object at numerous wavelengths, allowing for detailed analysis of plant health, stress, and nutrient deficiencies. This technology is particularly useful in precision agriculture, where it can be used to monitor crop growth and health, detect diseases and pests, and optimize nutrient management.

PHOTOGRAPHIC REAL-TIME DATA COLLECTION

Photographic real-time data collection is another important component of precision agriculture. This involves capturing high-resolution images of crops in real-time, which can be used to analyze crop growth, detect pest infestations, and monitor crop health. This technology is particularly useful for monitoring crops in real-time, allowing for immediate action to be taken if issues are detected.

METODOLOGY

1. Data collection: Data were collected from kiwi farms and paddy fields using drones equipped with various sensor systems.
2. Data analysis: The data collected were analyzed using various data analysis techniques, including statistical analysis, machine learning, and artificial intelligence.
3. Decision making: The results of the analysis were used to make informed decisions regarding crop management.

USAGES OF RESULTS

* Enhanced crop yields: The use of drones and sensor systems can result in increased crop yields due to improved crop management and optimized nutrient use.
* Reduced costs: The use of drones and sensor systems can reduce labor costs and improve efficiency.
* Improved decision making: The use of drones and sensor systems can improve decision making by providing real-time data on crop growth and health.

WHAT’S NEXT FOR NEXT GEN DEP? DRONES IN NEPAL?

Further research is needed to provide actionable insights and benefits to the following areas:

- Drones can be used to monitor crop health and disease, providing farmers with real-time information to make informed decisions.
- Drones can be used to monitor crop yield, providing farmers with valuable data to optimize their farms.
- Drones can be used to monitor soil health, providing farmers with valuable information to optimize their farms.

DISCUSSIONS

DA-DAPA can be used to assist farmers in managing their crops, optimizing nutrient use, and improving crop yields. However, there are several challenges that need to be addressed, including the cost of deploying drones and sensor systems, the lack of infrastructure to support their use, and the need for training and education to ensure that farmers can effectively use this technology.

ACKNOWLEDGMENTS

The authors would like to thank the KCAST for providing the necessary resources and support for this study. They would also like to thank the farmers and farm managers for their cooperation and support during the study.

REFERENCES


Drones for Humanitarian Work and NFL featured on a National Daily

An Interview with Uttam Puadasaini, Lab Coordinator for Nepal Flying Labs

by Zone Digital on March 7, 2017

A little while back we had the pleasure of meeting Uttam Puadasaini, lab coordinator for Nepal Flying Labs, the Nepal representative for World Robotics, and a mechanical engineering graduate from Kathmandu University. Through his work with Nepal Flying Labs, Uttam has been flying and coordinating UAV missions in Nepal, and he has also been a general booster in the area for commercial drone use. We’ve been fascinated to learn more about Uttam’s work with the Nepalese aviation authority in getting drones accepted for commercial use, and we wanted to ask him more questions about his background and experience with drones. These conversations are what led to the interviews below.

(Want to learn more about international drone laws? Check out our in-depth guide to drone laws by country, and our recent in-depth article on BVLOS around the world.)

About Nepal Flying Labs

Nepal Flying Labs (NFL) is a Nepalese-based NGO that is part of the global World Robotics network. It was created in the wake of the Gorkha Earthquake in the fall of 2015, which devastated the country of Nepal, destroying ancient monuments and killing over 8,200 people. Among other things, Nepal Flying Labs provides training for how to use UAVs to support disaster risk reduction and assist with early recovery efforts following disasters. Nepal Flying Labs is based in Kathmandu, the capital city of Nepal, and the work they do involves both community engagement and training.

Application of Drones IN Nepal:

"..."