Applications of UAV in Precision Agriculture: Applications and Challenges

KKVSM Kalyanapriya#, MWP Maduranga

Department of Computer Engineering, Faculty of Computing, General Sir John Kotelawala Defence University, Sri Lanka

Abstract. The production of food becomes a very important factor in feeding the population on this planet. Rather than that, agriculture gives several benefits to the country, including food and nonfood products, transportation, and environmental balance. The need for food security puts pressure on decision-makers to guarantee that our globe has enough food for everyone. Thus, the use of an Unmanned Aerial Vehicle (UAV) is an option for efficiently managing a farm to maximize its productivity. This study gives knowledge of the use of UAVs and their applications in agriculture to encourage the use of UAVs in agriculture and support their sustainability. The purpose of this paper is to examine the use of UAVs in agricultural applications. In recent years, intelligent sensor techniques have achieved significant attention in agriculture. It is applied in agriculture to plan several activities and missions properly by utilizing limited resources with minor human interference. Currently, plant cultivation using new agricultural methods is very popular among growers. However, aeroponics is one of the methods of modern agriculture, which is commonly practised around the world. Most wealthy nations now use Unmanned Aerial Vehicles (UAVs) and cutting-edge technology like Photogrammetry and Remote Sensing and Precision Agriculture to create healthy farms with less disease. The farmers will benefit from increased crop quality and production as well as, most critically, reduced costs, and workload. Additionally, it can be used to spray herbicides and fertilizer. To track the health and height of the crops, UAVs are frequently built with an autonomous drone system equipped with sensors and cameras. There are several UAV model kinds that have been produced. This paper will discuss the applications and challenges of unnamed aerial vehicles in the agricultural sector.

Keywords: UAV, Agriculture, Applications