

Augmented Reality and its possibilities in Agriculture (In Sri Lankan Context)

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Abstract

Since Sri Lanka is an agro country, its economy is mostly based on agriculture and agro based industries, animal husbandry and other agriculture based businesses. In Sri Lanka, Agriculture continues to be the major occupation and way of life for more than half of the total population. Since information technology and Internet network have become essential part in business processes recently it has considerable influence to be used in agriculture in the process of development. Nowadays the Internet-based applications are more and more successful in agriculture and different parts of the food industry. When it comes to information technology field the emerging trend is Augmented Reality (AR). The field of Augmented Reality (AR) has existed for just over one decade, but the growth and rapid progress in the past few years has been remarkable. The basic goal of an AR system is to enhance the user's perception and interaction with the real world through virtual objects. There are several application areas, such as extension services, precision agriculture, E-commerce and information services where augmented reality can be used. When it comes to the application areas of technology Agriculture is an area where advanced technology is always introduced with a delay. This research analyze on how augmented reality can be used in agriculture. Certain applications of the AR in agriculture are already present in European countries, but it's still in the infant stage in Asian countries especially in south Asian countries. In Sri Lanka many opportunities to use these techniques in agriculture can be predicted. Following are some instances of possibility of applications of AR in agriculture. The research areas such as In Sri Lanka many agricultural research centers like Sri Lanka Council for Agricultural Research, Gannoruwa Agricultural Complex, Agricultural Research and Development Centre exist where enrichment of an image becomes necessary. Here AR can be used to add dimension lines, coordinate systems, descriptions and other virtual objects to improve investigation and analyze of the captured images. Another aspect where the AR probably will visit in the near future is the cabin of modern agricultural machinery and mobile machinery. Some components of this system already exist and are being used in the form of simple displays that show the use of GPS. Adding the large displays or special glasses, where on the image fields will be imposed lines drawn by the computer which are showing the way for passage or plot boundaries, is a logical development of existing solutions. The third area is animal Husbandry and farming. A system of AR can be developed and installed in the farms of Sri Lanka for farm monitoring. Use of suitable software may allow determining individual pieces on the screen, with simultaneous administration of the relevant information about them. The following can be shown. The data insertion, information about the

health status of farm animals, etc. Finally in crop production it is possible to identify plants with a camera and appropriate AR system. This gives the ability to detect pests and to plan appropriate protective procedures. While studying the use of Augmented Reality technology in agriculture, it can be concluded that different types of services offer different possibilities. Mobile systems develop very dynamically both in regards to the speed of data transmission and services. New devices like tablets and new services like Cloud Computing, Near Field Communication (NFC) have great potential in agriculture. Augmented Reality can be allied with all those technologies and expands the possibilities to evolve towards a new era in agriculture in Sri Lankan agro farms. However, the whole assessment of topic must not be done only on the basis of the technology and taken out of its environment randomly, since the whole area is very complex, this paper focuses on finding and analyzing what is Augmented Reality and tries to highlight the possibilities in agriculture.

Keywords: *Augmented Reality, Agriculture*