Smart Palm Oil Plantation

Maahad Tahfiz Negeri Pahang, Perkampungan Peramu, 26060 Kuantan, Pahang, MALAYSIA
abdririm5917@gmail.com

Highlights: Smart Palm Oil Plantation is created to help improve our economy so Malaysia will be a better country which is known throughout the world. By improving the productivity of palm oil, our position as the second-largest palm oil producer will be strengthen or maybe increased until we become the largest palm oil producer overcoming Indonesia which is the current largest producer right now.

Key words: Innovation, Palm oil, Wild Animals, Peat soil, Productivity, Economy

Introduction
Palm oil production is vital for the economy of Malaysia, which is the world’s second-largest producer of the commodity after Indonesia. But, our country’s palm oil plantations are always facing problems that are hard to be dealt with. As we interviewed Yayasan Pahang Plantation Holding’s Assistant Manager, he stated that there are three problems. The first one is wild animals attacking the farm causing a lot of damage thus causes significant loss. The second problem is insufficient water causes peat soil to burn. And the last problem is transferring method to the factory. Buffalo is often used to transfer fruits to the factory although there are new modern ways. It is because machinery could cause
damage to most lands and causing less land to plant palm oil. So, we created a new system to overcome these problems which is named Smart Palm Oil Plantation (S.P.O.P). It consists of many high-tech tools which can solve these problems thus increasing the production of palm oil. To solve the first problem, we used motion sensor to sense wild animal presence and it will activate the buzzer which produces sound at a specific frequency to repel them. For the second problem, we create a water level detector. It will sense the level of the water in palm oil drainage system. When water is deficient, it will flow water into the drainage system. So, we can prevent the peat soil from burning because of insufficient water. The last problem is solved by creating a new high-tech method to transfer the fruits to the factory. Rather than using buffalo, we create a new system using the cable car concept to ease workers transferring fruits. So, we can reduce energy and maximize the production of palm oil. That is why our project is important to stabilize our country's economy and strengthen our position as the second-largest palm oil producer in the world.

Content
Smart Palm Oil Plantation (S.P.O.P) is the name of our innovation. It was created after we interviewed the Assistant Manager of Yayasan Pahang Plantation Holdings (YPPH), MrIkhwan. He said that there are many problems causing loss to our country’s palm oil production. The three most common problems are attacks of wild animals, flammable peat and deficiency of energy to transfer fruits. To solve these problems, we created S.P.O.P which is equipped with high-tech instrument. Wild animals' attacks can cause a huge loss to our production of palm oil. One attack could damage 200-300 immature trees. So, we solve this
problem by creating a sensory system that can prevent big losses. Using motion sensor to sense wild animal presence, it will activate the buzzer which produces sound at a specific frequency to repel them when animals are being sensed. Peat is used in palm oil cultivation. Peat is important because it retains moisture in container soil when it is dry and yet preventing the excess of water from killing roots when it is wet. Peat can store nutrients although it is not fertile itself. It has high carbon content and might burn under low moisture conditions. Once ignited by the presence of a heat source, for example, a wildfire penetrating the subsurface, it smolders.

These smoldering fires can burn undetected for very long periods of time months, years, and even centuries propagating in a creeping fashion through the underground peat layer. To avoid this happening, we created a water level detector. It will sense the level of the water in palm oil drainage system. When water is deficient, it will flow water into the drainage system. So, we can prevent the peat soil from burning because of insufficient water. Transferring fruits method to the factory is the last problem. Buffalo is used to transfer fruits to the factory. Men work is also another way to transfer fruits. But, these two methods have a same disadvantage. Both of them have limited energy so they cannot work for a long period. Rather than using these two methods, we create a new system using cable car concept to ease workers transferring fruits. So, energy consumption can be reduced. Our project is essential to our community because it can increase palm oil productivity thus stabilizes our economy.
Acknowledgement

We are grateful to Yayasan Pahang and MaahadTahfizNegeri Pahang (MTNP) for giving us chance to join the iCE-CInno Competition. Also, we appreciate the CEO of MTNP Dato' Haji Zulkifle b. Haji Ali for supporting our project. Thanks to our mentors, Sir Abdul Rahim b. Abdul Salim and Mohd Iskandar Putra b. Azahar for guiding us to completing this innovation.

References