



اوتنور سيني تيكنولوغي مارا  
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MARA

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## UBIQUITOUS FARM (U-FARM)

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## 1.0 Executive Summary

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According to the Industrial Revolution 4.0, technology entrepreneurship subject had a goal that wants the UiTM's Student to create a product that follows the nowadays technology. Therefore, for our group U-Farm (Ubiquitous Farm) is chosen to be of the new development product to be introduced in Industrial Revolution 4.0. The target of this product is to innovate or improve the smart greenhouse to be more effective in produce high quality and quantity of the plant.

This product involves hardware and software development. In the hardware part, we use the Arduino controller to send and receive a signal process which is from the signal from the sensor and instruction to the valve. In this product, there are two types of sensors that had been used which is soil moisture sensor and PH sensor. Moreover, Node MCU also used to display the condition of the soil on the phone. It will show the PH and the moisture of the soil. Other than that, the user can control the system by using their phones. The software that had been used is the coding to give an instruction to the Arduino controller. The language for the software is C++ and C programming.

Testing will be done continuously and in stages. We will first develop and test the hardware components and communications. The second stage will be to run the system which controls the valve for the solution to the plant. For a subject in this project, two tomato plants are used to show the difference of with and without U-Farm. Then, the timer will be tested for the system which is set twice per day at 7 a.m and 5 p.m. Next, the display of the PH and moisture of the soil must be seen on the phone. The type of Internet of Things (IoT) that been used is Wi-Fi. Therefore, this product can follow Industrial Revolution 4.0. Lastly, everything will be troubleshooting to identify the error or problem that occur during using this system.

This system could assist or lead the future projects to be more effective in the farming industry. Nowadays, there are many types of smart farming that had been used or created to achieve the high quality and quantity of the plant or farm. Therefore, this product will be one of the ideas in new development product to gain or increase the benefits of the farming industry such as the quality of the farm or plant, reduce the human work and approach people to start farming with an easy system that will simplify their work and help the beginners.