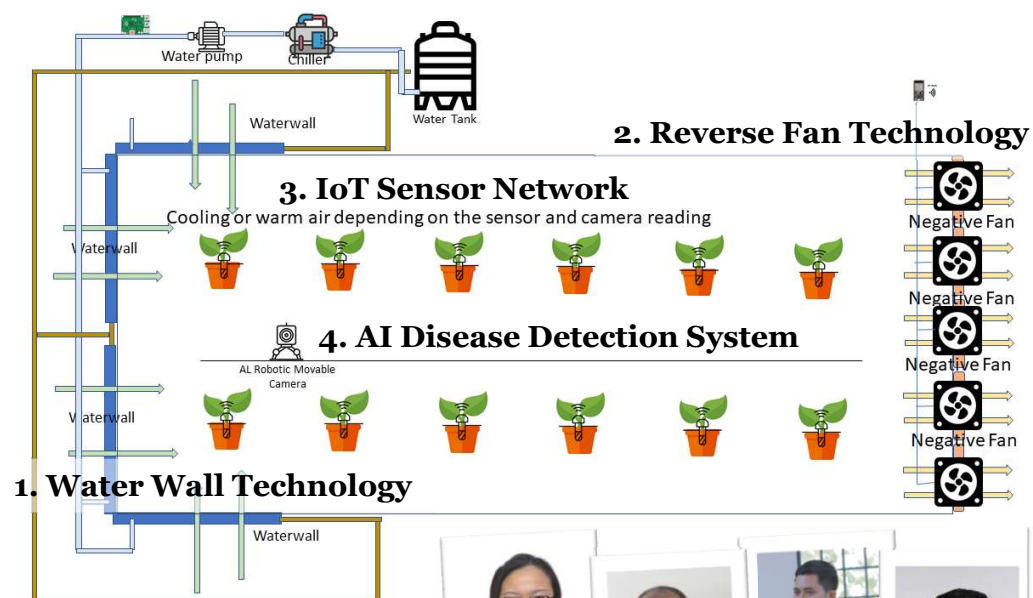


Introduction:

In the dynamic and promising horticultural landscape of South East Asia, the potential for high-yield crops such as chilli, vanilla, and lettuces are considerable, particularly in regions with elevations exceeding 700 meters. The warm climate prevalent in the area minimizes energy costs, rendering heating systems unnecessary. To capitalize on these conditions, a tropical greenhouse is usually used to cultivate crops that demand varied growing conditions. The cultivation of these high yield crops on a small scale can contribute to the economic development of ASEAN countries, such as Malaysia, Brunei, Cambodia, and Laos. However, the varying climates across different locations within South East Asia present a significant challenge.

The proposed project aims to study and develop an advanced energy-efficient smart greenhouse tailored for the diverse climate conditions of the ASEAN region for any variety of plan. With temperatures ranging from 21 to 40 degrees Celsius, this innovative greenhouse will incorporate cutting-edge internet-of-things (IoT) technologies and artificial intelligence (AI) to regulate temperature, humidity, and soil conditions, thus optimizing the cultivation of specific crops such as Vanilla (Malaysia), Chili (Brunei), and Lettuce (Cambodia). Four key research activities (as shown in figure) will be implemented by team members from 4 different ASEAN member countries.



Conceptual design of the smart environmental control greenhouse

Project Members:

