Krittatee Jindawong 2009: Design of a Robot to Control Relative Humidity in a Greenhouse by using Humidity Sensor. Master of Engineering (Agricultural Engineering), Major Field: Agricultural Engineering, Department of Agricultural Engineering. Thesis Advisor: Associate Professor Somyot Chirnaksorn, Ph.D. 164 pages.

This research is to design a robot which can operate in a greenhouse to increase the relative humidity. The robot was designed to move on a pipe rail which was installed in the greenhouse and operated automatically by a setting time or a setting relative humidity. The robot moved from a start point and checked the relative humidity of the air. When the relative humidity at anywhere was lower than a setting value, the spray system operated for 5 s and stop for 10 s, then checked the relative humidity again. If the relative humidity was still lower than a setting value, the robot would operate repeatedly until the relative humidity equaled to setting value and the robot moved again to a finish point at the end of the rail and then moved backward to the start point to prepare for the next operation.

The efficiency of the robot were measure by the differences among an inside and outside temperature and relative humidities. By setting a lower of the inside relative humidity at 60%, it was found that the average inside relative humidity could be controlled to not lower than 60% except at 12.00 and 13.00 pm. the average inside relative humidity was 57.67% and 58.33% respectively while the average outside was at minimum 47.14%. During the experiment, the average inside temperature was between 24.30 – 37.21 ^{o}C while the average outside was between 24.50 – 36.47 ^{o}C. The traveling speed was 5.7 m/min.

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