

ABSTRACT

The promotion is a marketing activities that have the purpose to accelerate the sales process and maximizing sales of products offered. In an event like the exhibit, there is usually a sales promotion girl/boy. The duty of the sales promotion is build direct interaction with consumers. With the development of Robotics technology, not promotional practices can only be done by a human, but can also be done by a robot. To make the robot can interact to human as a sales promotion system it takes a Human Robot Interaction (HRI). This system requires that the robot has a vision, wherein this vision requires a sensor-based vision (visual based sensor) which is one of the essential components for robot nowadays, included on the sales promotion robot.

In this final project, a non-verbal interaction system between human and robot using face detection has been created. The system was created with the technique of image processing using the webcam as visual sensors, which are then implemented on a line follower robot that has been programmed with fuzzy logic algorithm. The result of image processing which states that there is a face or no face in the frame will be sent from the laptop to the Arduino via a serial communications protocol. The system was created with the goal of creating robots that can interact with humans based on face in a frame image coverage.

The result of this research is a face detection system with 100% accuracy at a distance of approximately 30cm, 83.33% at a distance of approximately 1m, 80% at a distance of approximately 1.5m, 73.33% at a distance of approximately 2m and 2.5m and also 60% at a distance of approximately 3m with sufficient light. Face detection on this final project is implemented to make the robot can do an interaction in the form of promotion to the human based on detected face.

Keyword: Sales promotion, sales promotion robot, robot vision, face detection, OpenCV