The role of Artificial Intelligence, Object Detection, and Environmental Control in Greenhouse Automation

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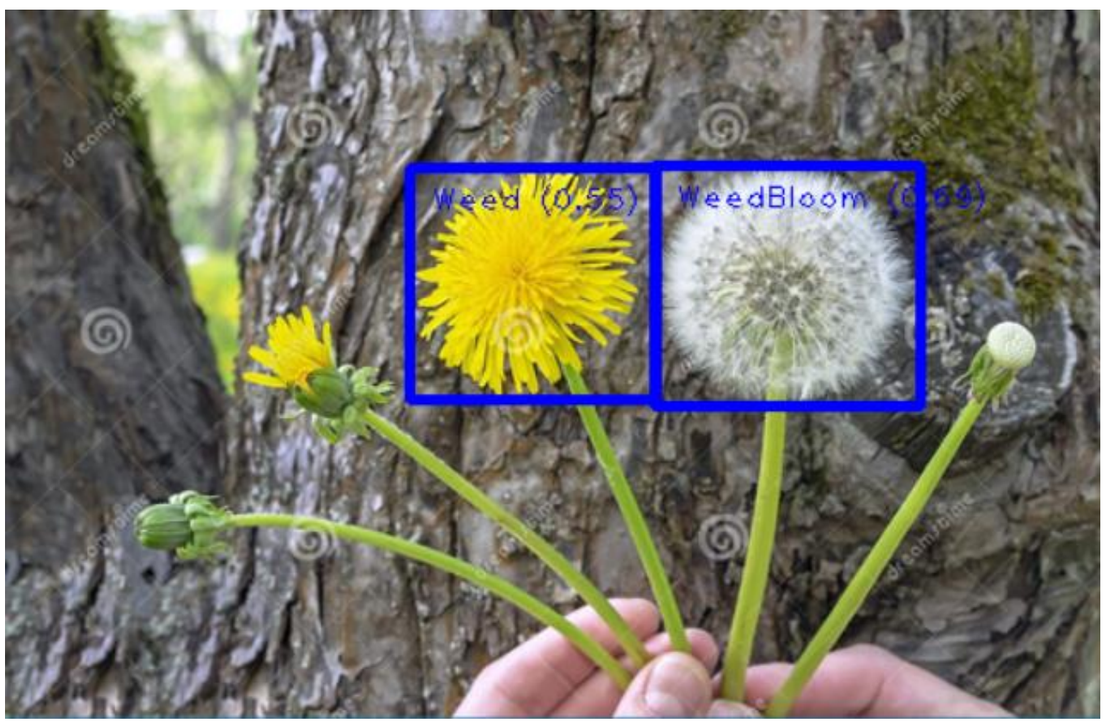
Project Aims

- Design a system used to automate the environmental control needed in a greenhouse.
- Investigate the extent to which a feed-forward neural network can be used to train a natural language processing model used for a Q&A ChatBot.
- Explore the feasibility of training an object detection model to recognise specific plants and to be used as the main pre-emptive measure towards weed detection in a greenhouse.



Evaluations

In order to automate the environmental control within the greenhouse, a Raspberry Pi is used to regulate the degree of soil moisture, ventilation and temperature using external high voltage actuators and general purpose sensors.

Using a Python framework for the Telegram Bot API, the system can communicate with the user and process a range of commands and natural language.

By using a camera module and training a custom weed detection model, the prototype can recognize and alert the user of weeds in the greenhouse.