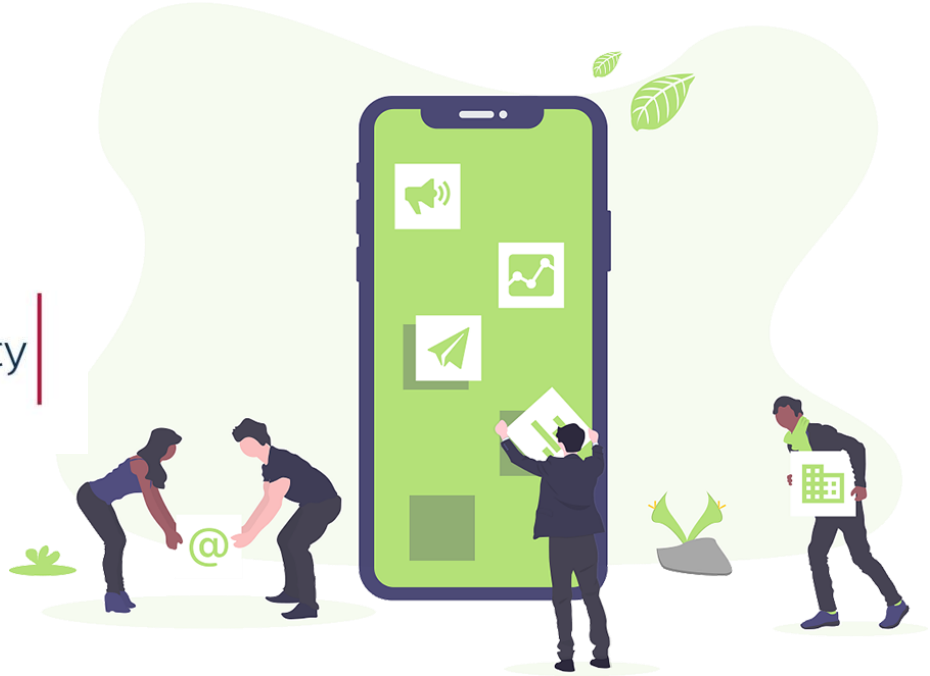
CropTomato

Brunel University London

Embedded Systems Engineering

IoT Applications Prototyping 14 March 2020



Hello!

We are Kevin and Vanessa

We want to improve colour-blind people’s lives.

Question:

What IF...

This is WHY we solve the problem through technology

Description:

Declaration of the degree of ripeness of tomatoes in real-time.

Target Groups:

Private persons

Gardeners and farmers with a colour blindness disability

Commercial users

Planters employing harvesters

Criteria

General Criteria

- Size & shape
- Degree of hardness
- Surface structure
- Smell
- Flavour

Visual Criteria

- Size
- **Colour**
- Anomalies

Degree of ripeness of tomatoes in three stages

Green – Unripe **Light Red – Half-ripe** **Red – Ripe**

Classification

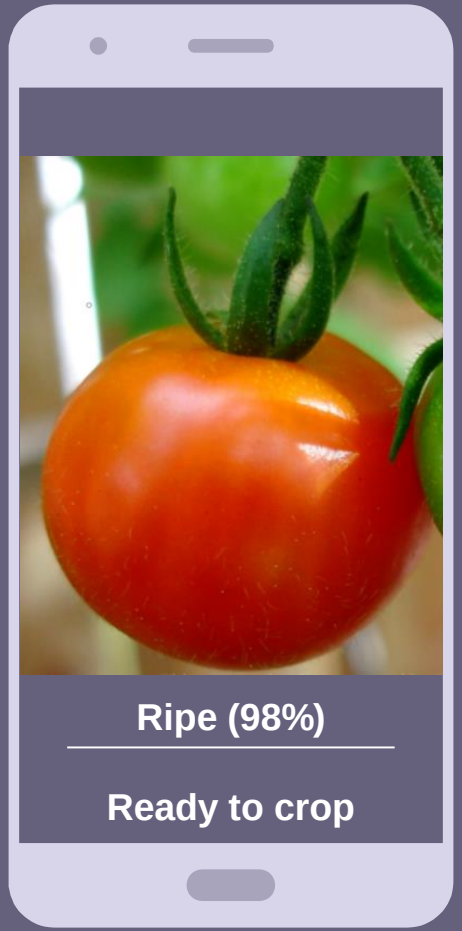
Class	Colour	Degree of Maturity
1	Green	Unripe
2	Light Red	Half-ripe
3	Red	Ripe

Neural Networks

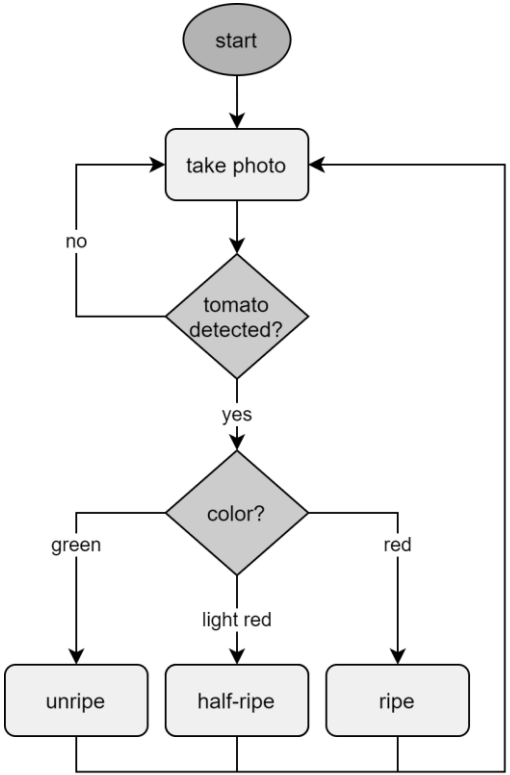
1. Dataset Creation
2. Model Training
3. Model Export
4. Model Integration into Android App

Mobile App

Display tomato ripeness and propose harvest decision



Flowchart


start
take photo
no
tomato detected?
yes
color?
green
light red
red
unripe
half-ripe
ripe

Thanks!

Any questions?

You can find us at:

- GitHub

References

[1] https://www.allaboutvision.com/conditions/colordeficiency.htm

[2] Elhariri E., El-Bendary N., Fouad M.M.M., Platoš J., Hassanien A.E., Hussein A.M.M. (2014) Multi-class SVM Based Classification Approach for Tomato Ripeness. In: Abraham A., Krömer P., Snášel V. (eds) Innovations in Bio-inspired Computing and Applications. Advances in Intelligent Systems and Computing, vol 237. Springer, Cham

[3] http://neuralnetworksanddeeplearning.com/chap1.html