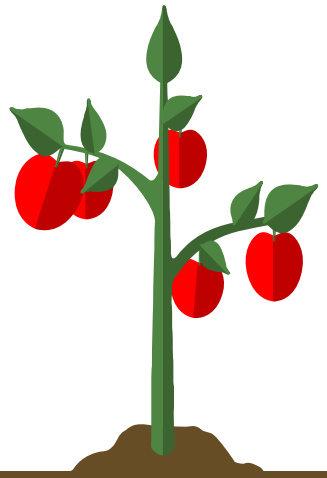
UNIVERSITI PUTRA MALAYSIA

AGRICULTURE • INNOVATION • LIFE

Checking Plant Health Through Normalized Difference Vegetation Index (NDVI) Using Mobile Phone



ASEAN IVO FORUM 2017

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Dr. Puteri Suhaiza Sulaiman

psuhaiza@upm.edu.my

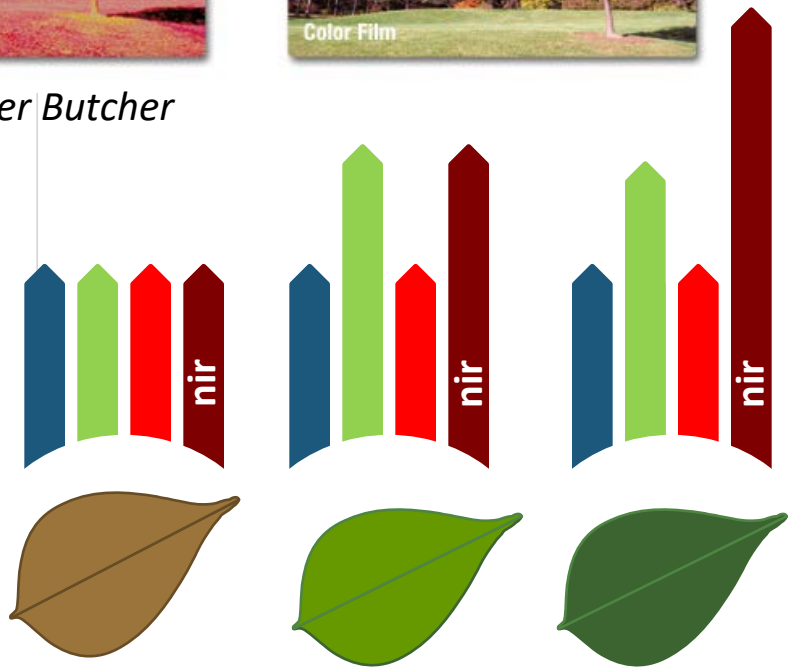
Faculty of Computer Science and Information System

What is NDVI?

NOTES

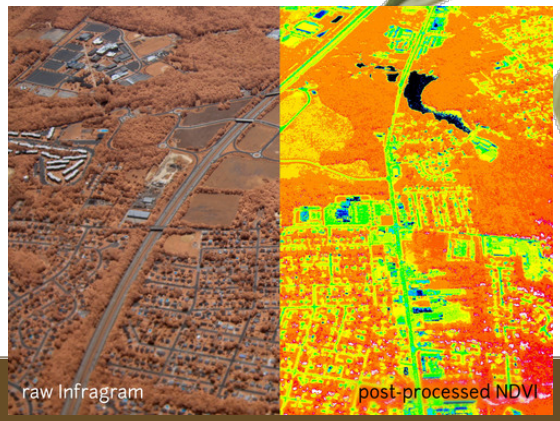
NDVI is a measurement of plant based on how a plant reflects light at specific frequencies.

Credit: Ginger Butcher



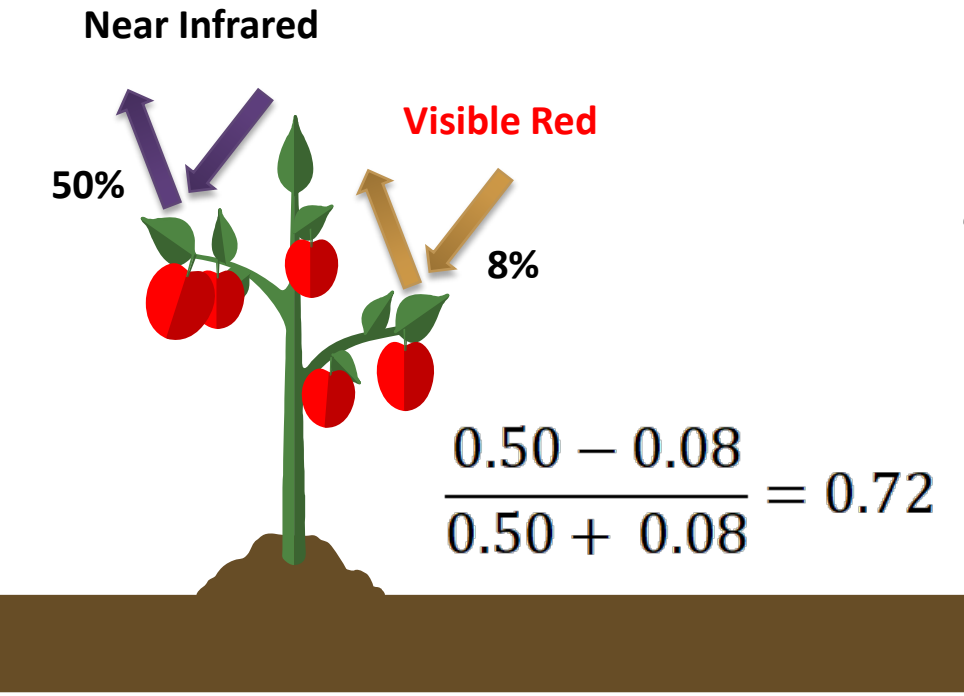
Credit: PublicLab

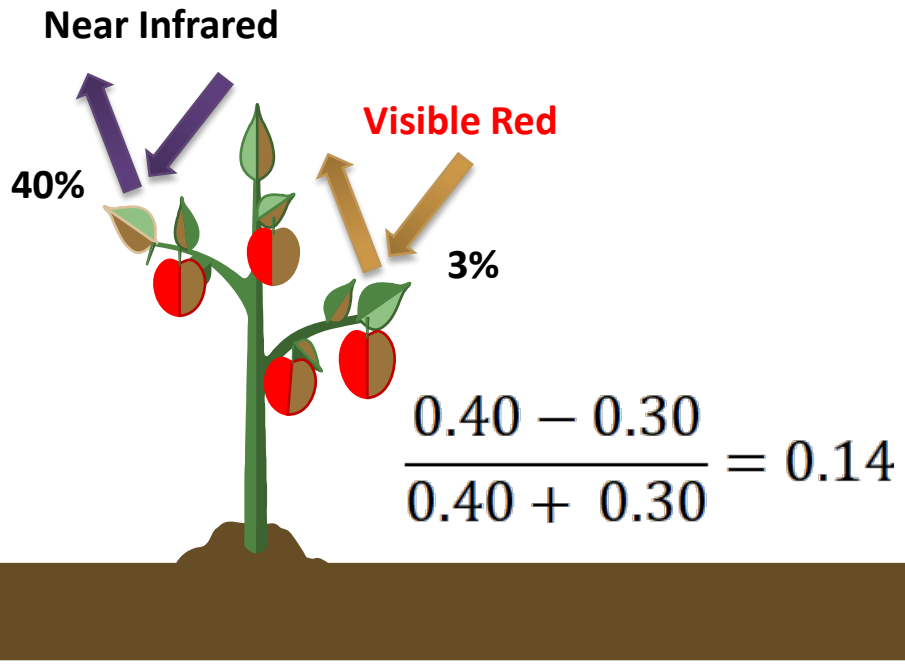
Satellite imagery in agriculture



NDVI Calculation

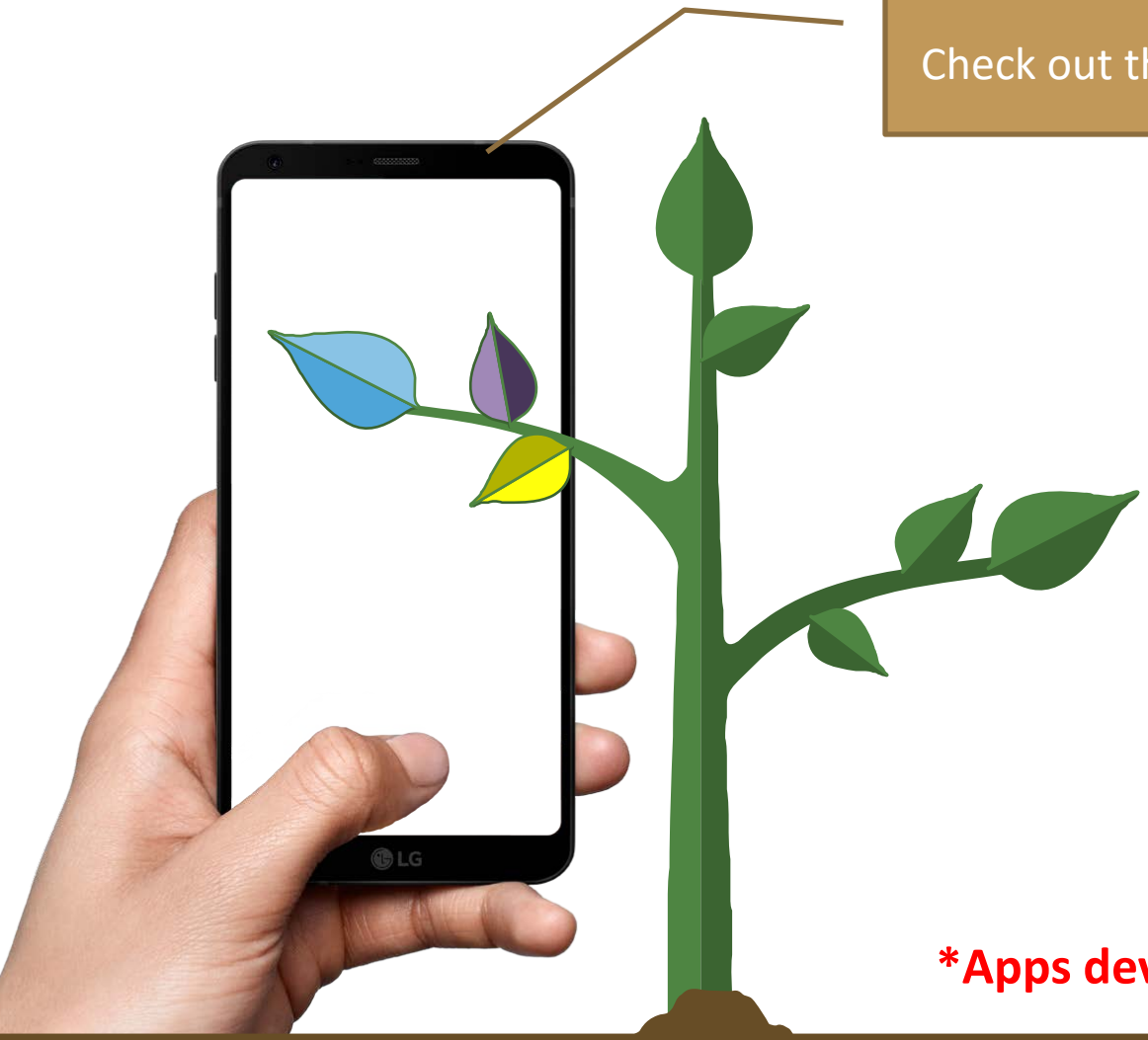
$$NDVI = \frac{NearIR - Red}{NearIR + Red}$$





-1 – 0	0 – 0.33	0.33 – 0.66	0.66 – 1
Dead Plant	Unhealthy	Healthy	Very Healthy

MOBILE SET-UP



Check out the NIR Filter in mobile phone

Visible light Filter

Polyvinyl chloride sheet

Red and Blue Filter

Rosco Fire # 19

Rosco True Blue # 2007

Rosco # 87

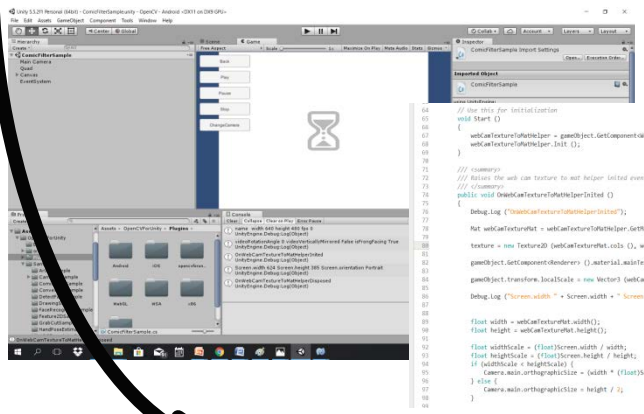
***Apps development : Unity and OpenCV**

NIR image

Red image

NDVI image

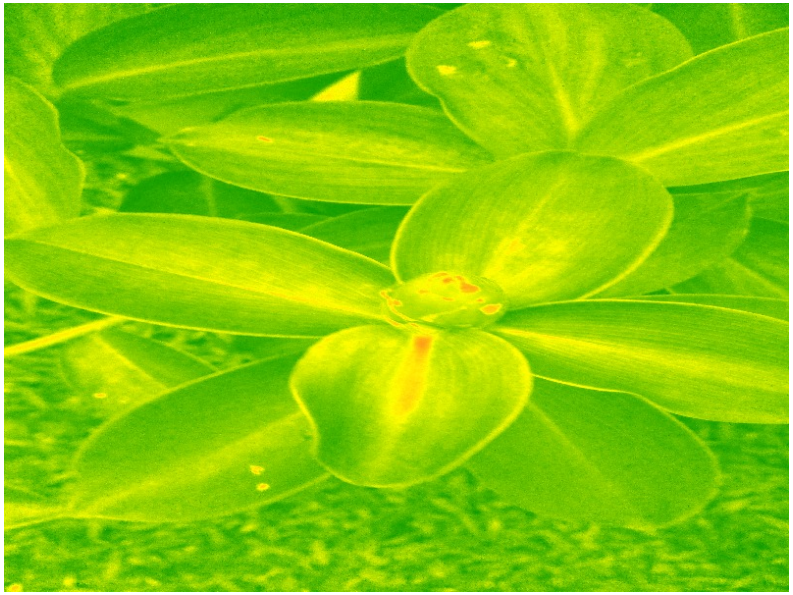
Color map table

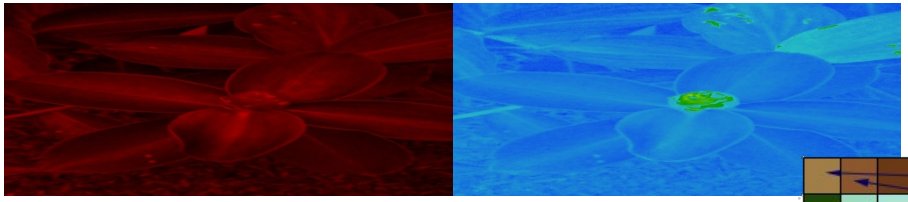


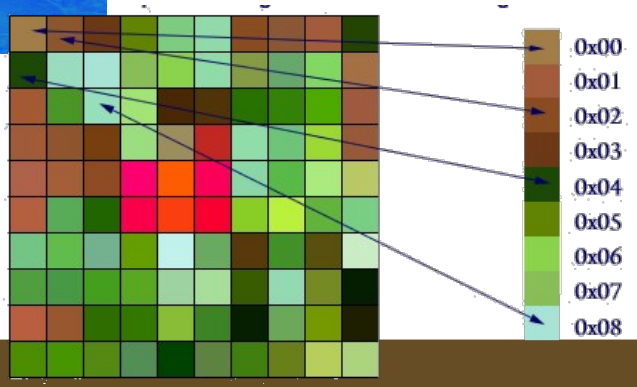
Health analysis

*Apps development : Unity and OpenCV

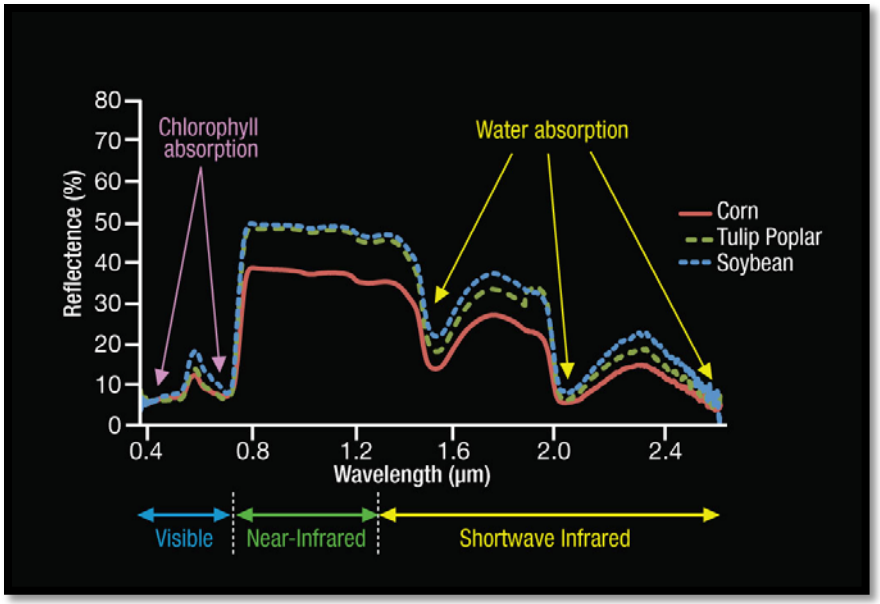
Preliminary Result

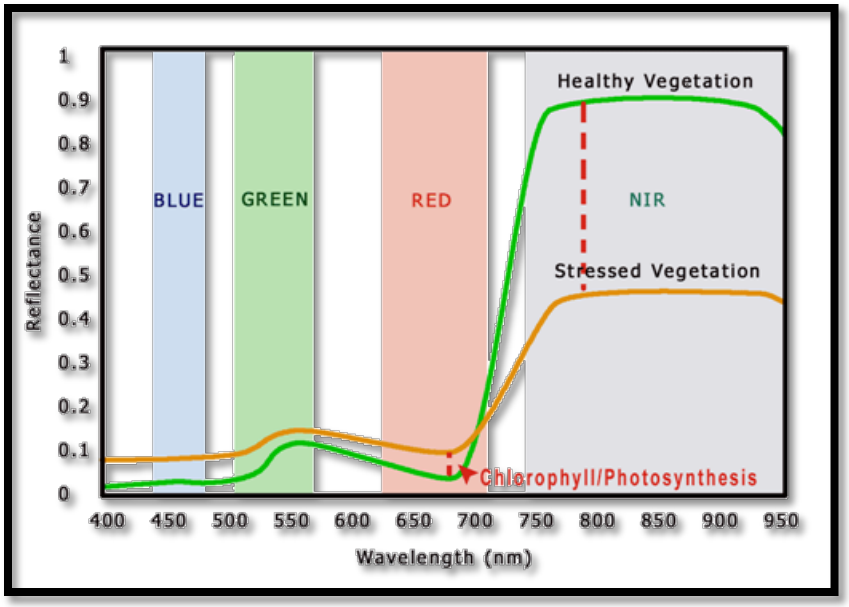






More findings



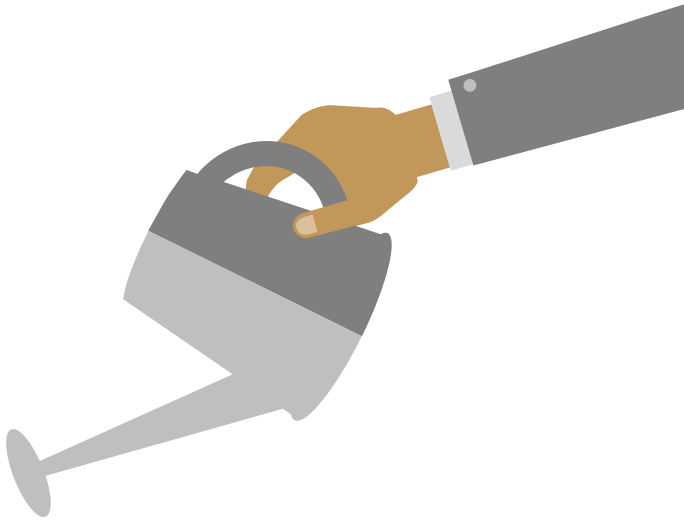


Credit: Eric Brown de Colstoun

Next: Plant health analysis algorithm

POTENTIAL APPLICATION

- Input for smart agriculture
- Low cost and doable multiple mobile applications



Seed for collaboration

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TerimaKasih | *Thank You*

psuhaiza@upm.edu.my