



**UNIVERSITI PUTRA MALAYSIA**  
AGRICULTURE • INNOVATION • LIFE

# Oil Palm

# Fruit Ripeness Detector

PI2018700326

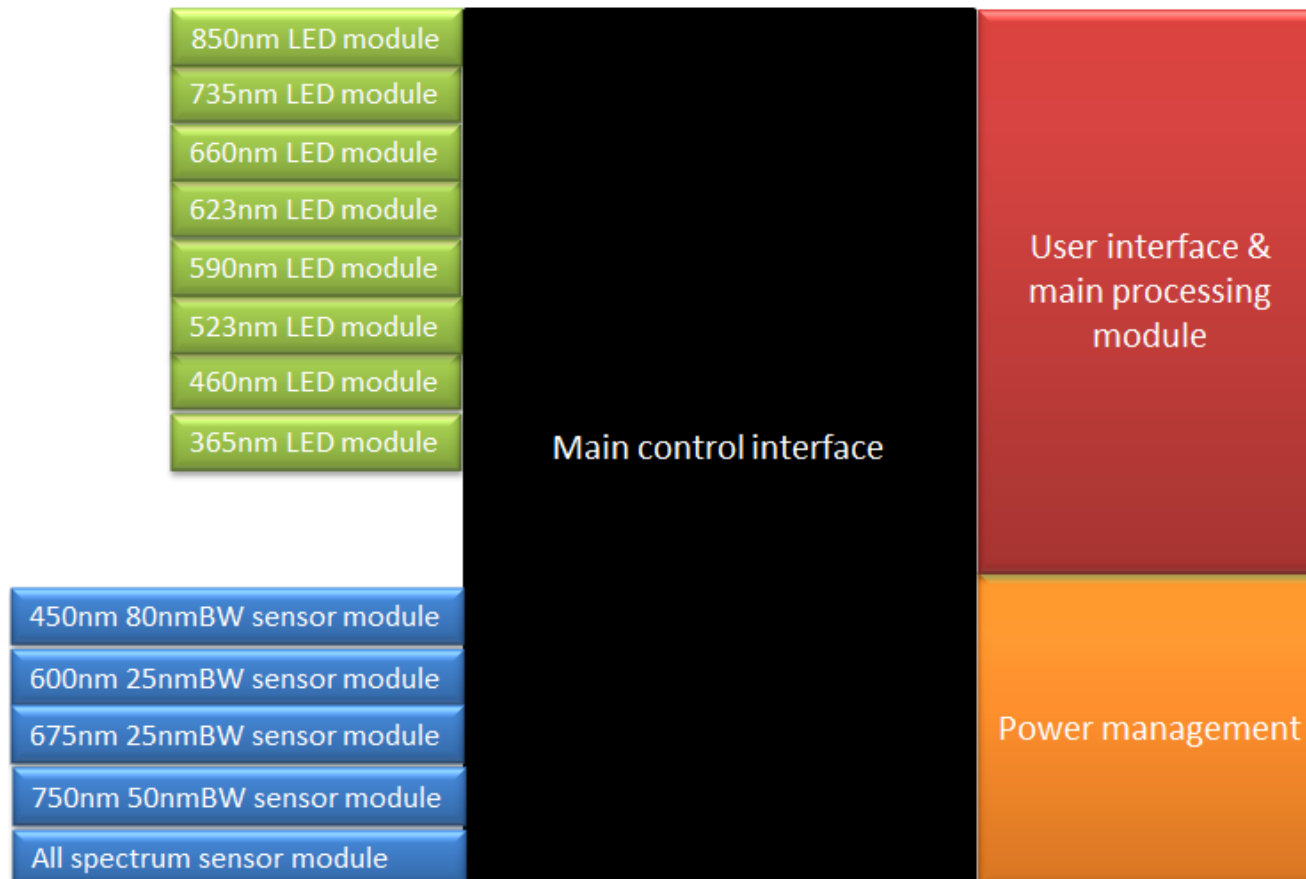
Profesor Dr. Abdul Rashid b. Mohamed Shariff  
Jabatan Kejuruteraan Biologi dan Pertanian  
Fakulti Kejuruteraan  
Universiti Putra Malaysia  
rashidpls@upm.edu.my  
<http://www.eng.upm.edu.my/~rashid>

# Problem Statement

- Fruit ripeness of bunches are determined by graders. However, such processes may be laborious and subjected to human error.
- With automation in mind, the study intends to design, fabricate and evaluate a prototype of oil palm fresh fruit bunches fluorescence sensor



# Technical Information Of OPRID



# Our Prototype Sensor



# Methodology

**Weka GUI Chooser**  
Program Visualization Tools Help

**WEKA**  
The University of Waikato

Waikato Environment for Knowledge Analysis  
Version 3.8.2  
(c) 1999 - 2017  
The University of Waikato  
Hamilton, New Zealand

**Applications**  
Explorer

**Weka Explorer**  
Preprocess Classify Cluster Associate Select attributes Visualize

Open file... Open URL... Open DB... Generate... Undo Edit... Save...

Filter: Choose None Apply Stop

Current relation: Relation: ffb Instances: 67 Attributes: 34 Sum of weights: 67

Selected attribute: Name: Class Name Missing: 0 (0%) Distinct: 4 Type: Nominal Unique: 0 (0%)

No.	Label	Count	Weight
1	unripe	4	4.0
2	under ripe	15	15.0
3	ripe	30	30.0
4	over ripe	18	18.0

Class: Class Name (Nom) Visualize All

Status: OK Log x 0

# Methodology



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1	Single Shot Mode						
2	Time	Emission	Sens1	Sens2	Sens3	Sens4	Sens5
3	25/06/13-	UV2UV1	0	0	0	260	0
4	25/06/13-	Blu	0	0	0	5130	0
5	25/06/13-	Gre	2987	0	0	6936	0
6	25/06/13-	Am1Am2	0	0	0	7852	0
7	25/06/13-	Red	0	977	0	2229	0
8	25/06/13-	DRed	0	4629	0	9524	0
9	25/06/13-	FRe	0	0	8695	37254	0
10	25/06/13-	IR	0	0	0	65139	0
11							
12							

# Results

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	<b>Highest accuracy</b>	<b>Models</b>	<b>Algorithms</b>
First experiment	100%	RedS2, RedS4, FRedS4, IRedS4	Logistic, Simple Logistic, LMT,
Second experiment	98.5%	RedS4	Logistic

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# Terima Kasih

## *Thank You*

**Interested for collaboration and commercialization;**

Innovation Promotion & Marketing Division,  
Putra Science Park,  
Universiti Putra Malaysia  
Serdang, Selangor

Tel : 03-9769 1254/ | [promosi@upm.edu.my](mailto:promosi@upm.edu.my)

**For other potential products:**

[www.sciencepark.upm.edu.my/industry-2263](http://www.sciencepark.upm.edu.my/industry-2263)