



## End of studies' project proposition - Master 2

Specialty : SIOD

University year 2019/2020

### 1. Project identification

– **Title :** TERAHERTZ AND INFRARED IMAGES FOR INTERIOR QUALITY CONTROL OF DATE FRUIT.

– **Keywords :** Terahertz images, Infrared images, Quality control, Dates fruits processing, Image processing.

– **Abstract :** Terahertz imaging is an emerging and significant nondestructive evaluation (NDE) technique used for materials analysis and quality control in the pharmaceutical, biomedical, security, materials characterization, aerospace industries and food inspection.

Instead of using X-ray machines, food and agriculture manufacturers and packagers can use terahertz images to inspect the interior contents of different products such as sugar, oil, water or defects.

The objective of this project is to study the use of infrared and terahertz images based on machine learning techniques to inspect the interior of date fruit.

– **Option :** SIOD

– **Provisional schedule :**

Task	Needed time
Study of infrared images for fruits interior content inspection	1 month
Study of terahertz images for fruits interior content inspection	1 month
Study of machine learning techniques for image analysis	2 months
Application on dates fruit interior inspection	2 months
Tests and validation	1 month
Thesis writing	1 month
Overall time needed	8 months

**2. Supervisor**

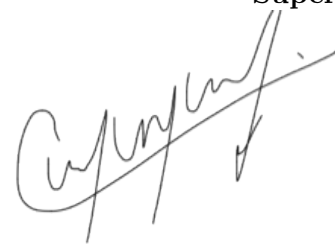
- First Name : **DJEFFAL**
- Last Name : **ABDELHAMID**
- Grade : **MCA**

**3. Student :**

- First name :
- Last name :
- Specialty :

Biskra, 11/09/2019

**Supervisor**

A handwritten signature in black ink, appearing to be 'Djeffal Abdelhamid', written over a horizontal line.