Test Plan for Oil Spills Detection Using Satellite Imagery

Madonna Said, Monica Hany, Moinca Magdy, Omar Salah
Supervised by: Dr. Ayman Nabil
Assistant Supervised by: Eng. Youmna Ibrahim, Eng. Maha sayed

March 30, 2021

Table 1: Document version history

Version	Date	Reason for Change
1.0	25-Jan-2021	Test Plan First version is defined.
1.1	2-Feb-2021	Test Scenario is Added.
1.3	5-Feb-2021	Test case is added.

GitHub: https://github.com/monikaMagdy/oil-well-detection-by-HSI

Contents

1 Introduction

The paper will discuss the various requirements that will apply to the specified system, integration and framework testing. These reports will be planned, developed and reviewed on the basis of oil spills detection project using satellite imagery.

1.1 Purpose

The purpose of the Test Plan is to characterize the different Testing tools and testing instruments utilized for the complete Testing life pattern of this project.

1.2 Scope

The document mainly focuses on the different scenarios for testing the information in the report yield according to Requirements Specifications found in the various paper that was read.

2 Test Scenario 1

The first possible scenario is that the petroleum technician login with the default account to upload the image he have. The uploaded image as a Bip image that is imported into the ARCmap to reprocess it and extract it to TIF file. Then we calculate the radiance that extract radiant image. Then the image is labelled into thick,thin and medium oil.Then calculating the three band ratios that is used to reclassify the rasters.That will lead the technician will receive a colored image that contain thick,thin and medium oil.

2.1 Test Cases

Test Cases for the scenario mention in section 2 shown in Table 2

Table 2: Test Cases for Scenario 1

Test Case ID	Test Case Desc	Functional Req Code	Test Data	Expected Result
TC01	User Logged successfully	FR01	Default	success login
TC02	Image is Uploaded successfully	FR02	BIP image	successful Uploa
TC03	pre-processed image	FR03,FR04	BIP image	successful pre-p
TC04	Test extract TIF file	FRO5	BIP image	successful extrac
TC05	Checking classification tool	FRO6	TIF image	TIF labelled ima
TC06	Calculating Radiance	FRO7,FRO8	TIF labelled image	Radiant image
TC07	Import band ranges	FRO9	Radiant image	successfully imp
TC08	selecting reclassify tool	FRO10	band range image	Colored image

3 Test Scenario 2

The Second possible scenario The uploaded image as a TIF file Then we calculate the radiance that extract radiant image. Then the image is labelled into thick,thin and medium oil.Then calculating the three band ratios that is used to reclassify the rasters.That will lead the technician will receive a colored image that contain thick,thin and medium oil.

3.1 Test Cases

Test Cases for the scenario mention in section 3 shown in Table 3

Table 3: Test Cases for Scenario 2

Test Case ID	Test Case Desc	Functional Req Code	Test Data	Expected Result
TC09	Upload TIF file	FR03,FR04	TIF image	skip the pre-process image

4 Test Scenario 3

The Third possible scenario is the technician will fail to uploaded image to the system.

4.1 Test Cases

Test Cases for the scenario mention in section 4 shown in Table 4

Table 4: Test Cases for Scenario 3

Test Case ID	Test Case Desc	Functional Req Code	Test Data	Expected
TC10	failed to Upload BIP file	FR02	Unrecognised extension of image	invalid ra

5 Test Scenario 4

The Fourth possible scenario is that the petroleum technician will uploaded image that doesn't contain according to spectral signature of oil slicks oil which lead to stop in the labeling step.

5.1 Test Cases

Test Cases for the scenario mention in section 5 shown in Table 5

Table 5: Test Cases for Scenario 4

Test Case ID	Test Case Desc	Functional Req Code	Test Data	Expected Result
TC11	Oil existence	FR06	unlabeled image with no oil	failed to find oil spill .

6 Test Scenario 5

The Fifth scenario is that the petroleum technician login with the default account to upload the image he have. The uploaded image as a Bip image that is imported into the ARCmap to reprocess it and extract it to TIF file. Then we calculate the radiance that extract radiant image. Then the image is labelled into thick,thin and medium oil slicks but it won't be able to train the classifier as the labeled data is enable to be extracted.

6.1 Test Cases

Test Cases for the scenario mention in section 6 shown in Table 6

Table 6: Test Cases for Scenario 5

Test Case ID	Test Case Desc.	Functional Req. Code	Test Data	Expected Result
TC12	labeled data availability	FR06	labeled image	Labeled image is not availab