



Summer Fellowship Report

On

FOSSEE Web Development

Submitted by

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Chapter 1

Introduction

FOSSEE sites use banners to display important events it becomes quite a hassle to maintain multiple banners across different sites. The aim of my project was to make a user interface to manage the banners for various events across multiple sites. So I developed FOSSEE Site Banner which was a custom module for Drupal CMS(Modules are external code installed in a drupal website to add more functionality). The project repository is currently available in Github

Part I

Drupal 7

Chapter 2

Functions

2.1 Creation of banners

The module has an easy interface for creating new banners and set the time till which it will be displayed. The data is saved in a database table corresponding to the module which can also be accessed from other places as required.

2.2 Managing Banners

The module makes it easy to select the sites on which the banner will be displayed by selecting the checkboxes corresponding to the site name. In case there is any change in .

2.3 Block

The block is a php program separate from the module which has to be implemented in the region where the banner is supposed to be displayed the module can control whether the banner is displayed and how long it is displayed using the block. The block can also display multiple banners after regular intervals if required. This is achieved using javascript.

2.4 SMTP email

The module is capable of sending email to the banner administrator on important events like creation of new banners and it is also implemented in `hook_cron()` so that it can regularly check for banners whose validity is about to expire and warn the admin about it.

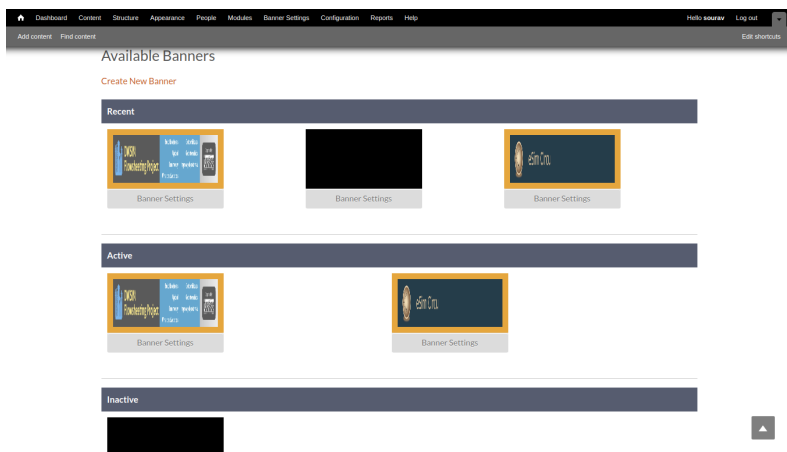
Chapter 3

Pages and Navigation

3.1 Banners Page

[path = fossee-site-banner/banners]

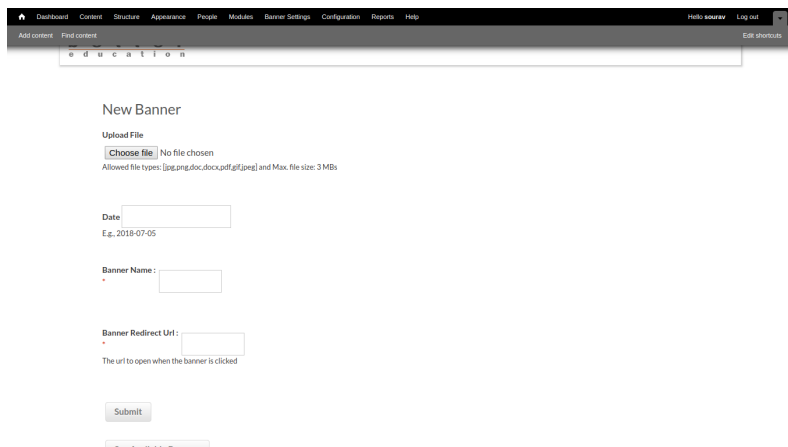
This page is used to see the available banners and their status. Below each banner there is a button that takes the admin to the banner-settings page of that particular banner. The banners can be activated or deactivated by clicking on the banner image.



3.2 New Banner Page

[path = fossee-site-banner/new-banner]

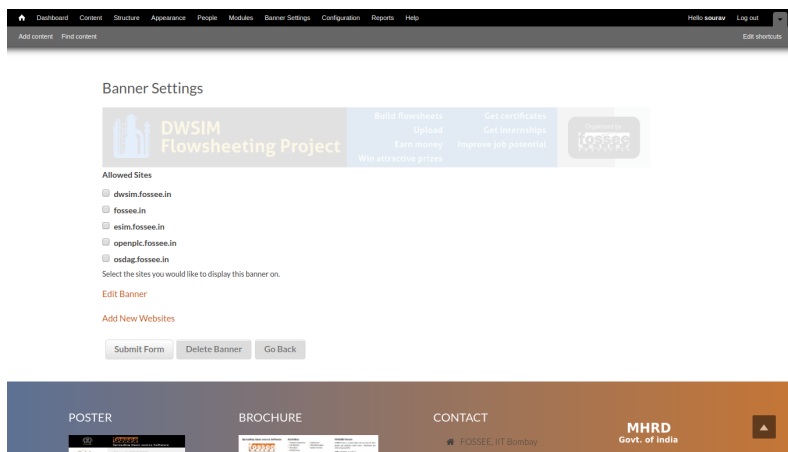
This page is used to create new banners and assign Banner Name, validity, Banner Redirect Url to the banner.



3.3 Banner Settings

[path = fossee-site-banner/banner-settings/{arg}]

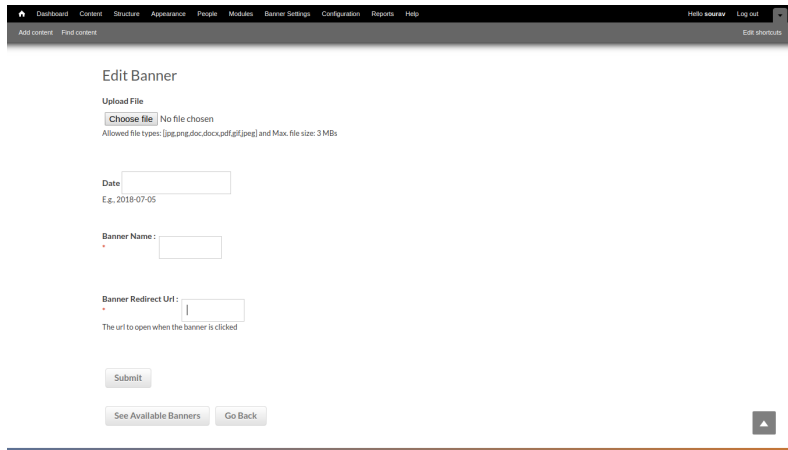
This page is used to select the websites where the banner will be shown, it also contains links to the add-website page and edit-banner page.



3.4 Edit Banner Page

[path = fossee-site-banner/edit-banner/{arg}]

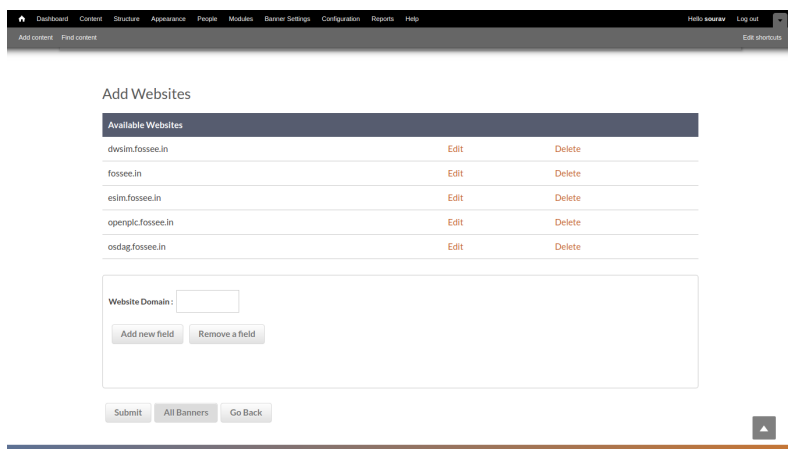
This page is used to edit the banner details or upload a new banner image



3.5 Add Website Page

[path = fossee-site-banner/add-website/{arg}]

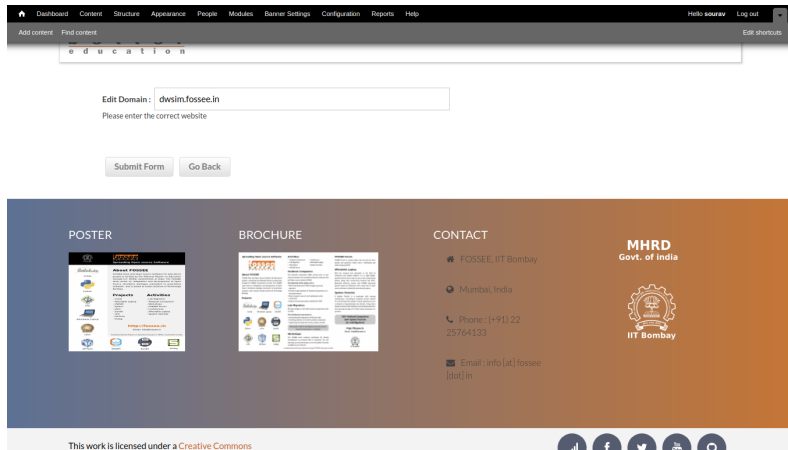
This page is used to add new website. The newly added website will be instantly available in the banner settings page so that banners can be assigned to that page.



3.6 Edit Website Page

[path = fossee-site-banner/edit-website/{arg}]

This page is used to edit an already added website. The changes will be available instantly.



Chapter 4

About Drupal

4.1 Module

Initially the module was made for drupal 7 then it was migrated to drupal 8. So the module now has two versions meant to run on drupal 7 and drupal 8 respectively.

It was initially developed on a WAMP 7.0.29-0 localhost server which is based on apache with php 7.2 and MariaDB MySQL database on a Ubuntu 16.04.4 LTS (Xenial Xerus) machine. Then it was tested on the FOSSEE test server.

4.2 Module File Structure

4.2.1 MODULE.info

This file contain all the info about the module like name,description,core,style sheets to be included,JavaScript files to be included etc

4.2.2 MODULE.install

This file contains all the operations that is to be performed during installation and un-installation of the module

4.2.3 MDULE.module

This file contains all the main programs and functions of the drupal module. But it is also possible to maintain the codde into seperate .inc files which can be included in the module as required.

4.2.4 .inc files

For easier management the code can be divided in .inc files which can be included in the .module file as required.

4.3 Drupal Apis

Drupal makes web developement easier by providing various apis which saves a lot of work compared to web developement from scratch. The most commonly used api in the module is the drupal database api which makes writing complex mysql queries very simple and allows better error detection and exception handling.

4.3.1 db__insert/db__select/db__update

This three functions allow inserting,selecting and updating data respectively into the database.

->**fields(array(field1,field2))**

This function is used to choose the fields where the operation is to be performed

->**conditions()**

This method is used to provide conditions for selecting the row/rows in which the operation is to be performed.

->**execute()**

This method is called to finally execute the database operation according to the fields and conditions given above.

4.3.2 Drupal Forms

This api is used to create forms in drupal from which three main hooks `hook_form()`, `hook_validate()`,`hook_submit()` are mostly used in the module.

hook_form()

This hook is used for creating the form which returns an array containing the form element. The form elements is an array of keys like '#type', '#title', '#description', '#required' etc.

hook_validate

This hook is used to validate the data entered by users before submission, it can also be used to give relevant error messages and prevent submission of form if there is an error.

hook_submit

This hook is used to perform necessary action after submitting the form like entering the values to database, save a file to the server etc.

Part II

Drupal 8

Chapter 5

File Structure

5.1 **MODULE.install**

This file contains the action to be performed during installation of the module like creating database tables etc.

5.2 **MODULE.libraries.yml**

This file contains the external javascript and css file included in the module.

5.3 **MODULE.routing.yml**

This file defines the path to different pages of the module.

5.4 **MODULE.links.menu.yml**

This file defines the menus for the module.

5.5 **MODULE.permissions.yml**

This file defines the permissions required to access pages of the module. Only the users with those permissions can access the page.

5.6 MODULE.module

This might contain required hooks and that can serve as a page,form or some other function.

5.7 js

This directory contains all the javascript files to be included in the libraries.yml file.

5.8 css

Css style sheets are stored here to be included in the libraries.yml file

5.9 src

This directory contains the Controller and Form directory.

5.9.1 Controller

This directory contains php file which contains function that are called according to the routing.yml file when a user opens a particular path in the website.

5.9.2 Form

This is where code for all the forms are stored with their necessary hooks

Chapter 6

Migration

6.1 Differences between drupal 7 and drupal 8

The major difference between drupal 7 and drupal 8 is the platforms use procedural and object oriented programming respectively.

6.2 Steps involved in migration

The major steps involved in migrating a module from drupal 7 to drupal 8 are.

6.2.1 Converting info files to .yaml files

Unlike drupal 7, drupal 8 uses .yaml files to store metadata and other information about the module.

6.2.2 Converting hook_menu()

hook_menu() and other form apis use different kind of argument of form and form_state

6.2.3 Converting Drupal 7 variables to drupal 8

variable_get() and variable_set() in drupal 7 needs to be changed to Drupal::state()->get() and Drupal::state()->set() respectively.

Similarly changes have to be made to permissions, hook_menu(), use of external javascript and css file etc.

Part III

Drupal 8 Theming

Chapter 7

Theme for openplc.fossee.in

The drupal 8 theme was designed for openplc.fossee.in so that it can be migrated to drupal 8. Github

7.0.1 File Structure

7.0.2 Info Files

THEME.info.yml

This file contains the details about the theme like name,type,description,package etc. It also contains the definition of regions available in the theme.

THEME.libraries.yml

This file contains the definitions of the the css and javascript files that are to be included in the theme.

7.0.3 **THEME.theme**

This file contains various hooks required for the theme like hook_alter(),hook_preproc

7.0.4 **page.html.twig**

This page contains the template for the theme. It also contains twig to generate dynamic content.

7.0.5 **page-front.html.twig**

This page is used to set a special template for the front page only.

Reference

- <https://stackoverflow.com/>
- <https://www.drupal.org/>
- Drupal official documentation
- Various resources on youtube.com