

# System Administrator's Guide

**Project name:** TASMU Robotics

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## Overview

This guide will provide an overview of setting up and maintaining a Flask web application, including installation, configuration, deployment, and basic troubleshooting. Flask is a lightweight Python web framework that allows for rapid development of web applications.

## Prerequisites:

- Basic understanding of Python programming language
- Familiarity with command-line interfaces and terminal usage
- Knowledge of web server software

## Installation:

- Ensure Python is installed on the system (3.6 or higher recommended)
- Install Flask and its dependencies using pip: “pip install Flask”

## Example of creating a basic Flask Web Application (Hello World!):

```
from flask import Flask

app = Flask(__name__)

@app.route('/')
def hello_world():
    return 'Hello, World!'

if __name__ == '__main__':
    app.run()
```

*Save the file as app.py and run on the terminal: “python app.py”*

## Deployment and Configuration:

- Choose a deployment method based on your needs and infrastructure, such as using a WSGI server like Gunicorn or uWSGI, or a platform-as-a-service (PaaS) provider like Heroku or Google App Engine
- Configure the web server to proxy requests to the Flask application, if necessary
- Use Flask extensions, such as Flask-SQLAlchemy for database management and Flask-WTF for handling forms, to extend the functionality of your application

### **Maintain and troubleshoot the application:**

- Regularly update Flask and its dependencies to their latest versions
- Monitor application logs for errors and unexpected behavior
- Optimize the application's performance by using caching, load balancing, and other techniques
- Implement automated testing to ensure the application's functionality remains consistent during updates and modifications
- Regularly back up your application's data and codebase to minimize data loss and downtime

### **Resources:**

- Flask documentation: <https://flask.palletsprojects.com/>
- Flask extensions: <https://flask.palletsprojects.com/extensions/>
- Deployment options: <https://flask.palletsprojects.com/deploying/>