Urban Simulation Platform Projects

[Title of the Research Project]

Student/Researcher: [name]

Supervisor: [name]

Project Integrator: [name]

Next-Generation Cities Institute (NGCI)   [date]

This project is a part of The NGCI's Urban Simulation Platform project. The platform has integrated the application of NGCI's research projects in Python programming language. These projects are developed by graduate students and researchers of the institute towards urban sustainable development in six main areas: energy systems, building, transportation, vegetation, waste and recycling, liveability.

The integration of a project refers to further development of a research project in Object Oriented Programming (OOP) paradigm following the coding style of the platform. This is done in order to employ multiple projects in a single workflow.

For more information about this piece of software and documentation, contact [Name of the integrator] (what you want to show as the email address) For detailed technical information of the project read [Researcher's name] [degree]'s thesis report on the same subject [code for the link to the research paper/report: (what you want to show as the link's title)].

Contents

1   Model Description

Here is what can be covered in the section:

- A brief overview of what problem(s) the model is trying to solve.

- The methodologies or algorithms used.

2   The Project Structure

Provide a general description of the software integration project.

2.1   ClassName1

Subsection titling the names of classes/coding files if you would like to provide more details.

In the LaTeXfile of this document, please locate the code for inserting programming snippets, as demonstrated below:

```
1  import math
2  def circle_area(radius):
3      return math.pi * radius ** 2
4  print(circle_area(3))
```

(Select the programming language and configure color settings from lines 17-30 of the LaTeXfile for this document).

2.2   ClassName2

Include an example of instantiating the class for clarity.

2.3 ClassWorkflow

You can also include links to the GitTea or other repositories of the research project.

3 3rd Party Software

- A list and brief description of any 3rd party software your model uses (EG SUMO or Energy Plus)

- Any licence requirements

- Link to where to find the software

4 Input Data

Table samples can be found in the example project (Microbial Systems). The code includes units for easier copy/pasting ;-)

- A list and description of all the types of data needed as inputs to the model.

- Information on what format each type of data needs to be in.

- Description of any pre-processing that needs to be applied to the data

- Any other information that someone would need if they were trying to source their own dataset for your model.

- Links to any use-case or test data that you have.

- Information on where to source any of the data.

5   Constants

- Any fixed values built into your model plus rationale for why you have chosen them.

- Any other assumptions made by your model that are not apparent from the input data or constants in the code.

6   Output Data

- A list and description of all the types of data that are output by the model.

- Information on the format of each type of output data.

- Links to any use-case or test output data that you have.

7   Limitations

- Brief description of any constraints on how the model may be used.

  - For example, it may only be valid in certain climatic conditions.

  - For example, it might require a minimum sized input data set to be statistically meaningful

8   Technical Performance

- Any notes relating to things like:

  - The time taken for the model to run on large data sets (eg takes over 100 hours to process 10 small family dwellings)

  - Any very large runtime memory requirements

    – Any very large output data files.

9   More sections...

Feel free to add new sections that you feel are missing or specific to your project.