The \*\*nobility\*\* and \*\*dataset\*\* of the second paper, "LoRa RSSI Based Outdoor Localization in an Urban Area Using Random Neural Networks," can be summarized as follows:

### Nobility of the Paper:

This paper contributes significantly to outdoor localization using LoRa technology and Random Neural Networks (RNNs). Its key contributions include:

1. \*\*Novelty\*\*: It develops a novel, energy-efficient localization model using LoRa RSSI data and RNNs, which is crucial for the Internet of Things (IoT) devices in urban environments where GPS has limitations due to high power consumption and cost.

2. \*\*Innovation\*\*: It introduces Random Neural Networks, a method not previously applied for LoRa-based localization. This method improves location accuracy over traditional approaches.

3. \*\*Practical Application\*\*: The model achieves impressive localization accuracy with a mean error of 0.39 meters, making it highly practical for urban environments and smart city applications, such as healthcare and asset tracking.

4. \*\*Energy Efficiency\*\*: The paper emphasizes the need for low-power, high-accuracy localization, addressing a critical challenge in large-scale IoT networks.

### Dataset:

The dataset used in this research comprises \*\*real-world LoRa RSSI measurements\*\* collected from three gateways located in \*\*Glasgow City\*\*, UK. The details include:

1. \*\*Data Collection\*\*: LoRa RSSI data were gathered using three LoRaWAN gateways placed at strategic urban locations. The dataset was collected by a moving LoRaWAN end device, recording RSSI values at different urban locations.

2. \*\*Normalization\*\*: The dataset was preprocessed using Min-Max Normalization to stabilize the network by scaling the large RSSI values.

3. \*\*Training and Testing\*\*: The dataset consisted of \*\*1931 data points\*\*, with 80% used for training and 20% for testing the RNN-based model. This real-world dataset enabled the model to predict 2D Cartesian coordinates for outdoor localization.

In conclusion, the paper provides both theoretical advancements and practical, real-world applications, particularly in enhancing the accuracy of outdoor localization systems using LoRa and Random Neural Networks.