

LIST OF FIGURES

Figure 2. 1 LPWAN Technology Classification Based on Regulators[18]	8
Figure 2. 2 Up-Chirp and Down-Chirp[20]	9
Figure 2. 3 Spreading Factor vs Time-on-Air[20]	10
Figure 2. 4 SNR and BER against Spreading Factor[10].....	10
Figure 2. 5 LoRa Packet Structure[24]	12
Figure 3. 1 Simulation Flow.....	18
Figure 3. 2 Observation Area	19
Figure 3. 3 Structure of Dataset	21
Figure 3. 4 Flowchart Simulation.....	25
Figure 3. 5 Data Pre-processing Process.....	26
Figure 4. 1 Average RSSI and SNR vs Distance for Each SF	30
Figure 4. 2 Average RSSI and SNR vs Distance for Each Power	30
Figure 4. 3 KNN Confusion Matrix of Spreading Factor	40
Figure 4. 4 Random Forest Confusion Matrix of Spreading Factor	40
Figure 4. 5 Decision Tree Confusion Matrix of Spreading Factor	41
Figure 4. 6 KNN Confusion Matrix of Power.....	42
Figure 4. 7 Random Forest Confusion Matrix of Power.....	42
Figure 4. 8 Decision Tree Confusion Matrix of Power.....	43