

# Bluetooth Tracking Report

feb9/2-9-test3-ftm.csv

February 19, 2025

## 1 1D b1d\_distance

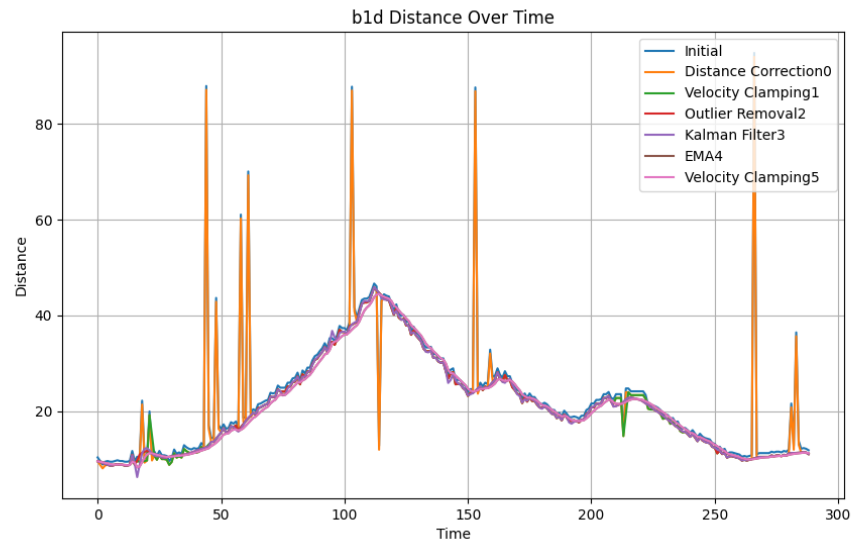


Figure 1: b1d Distance Over Time

## 2 1D b2d\_distance

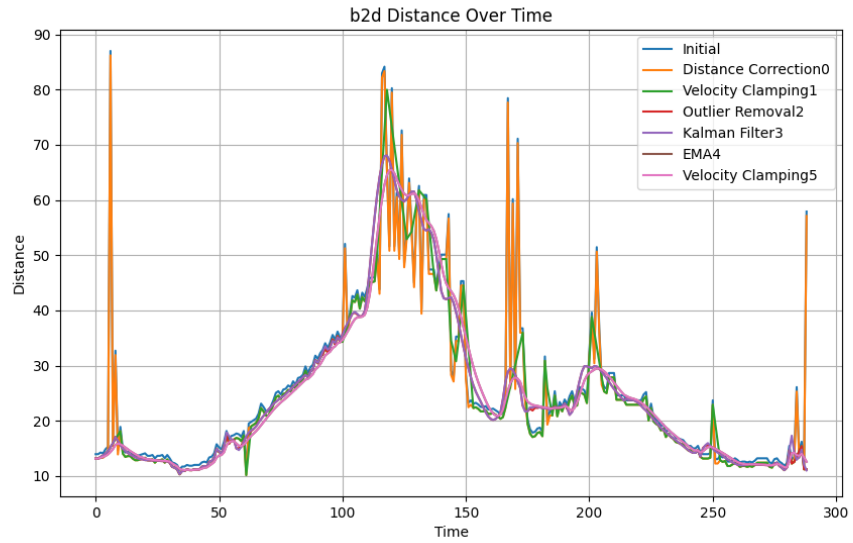


Figure 2: b2d Distance Over Time

### 3 1D b3d\_distance

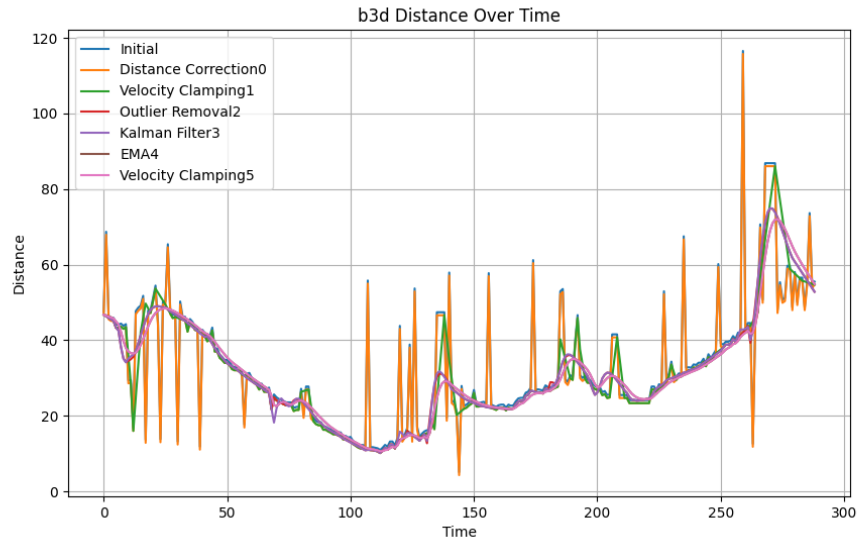


Figure 3: b3d Distance Over Time

## 4 1D b4d\_distance

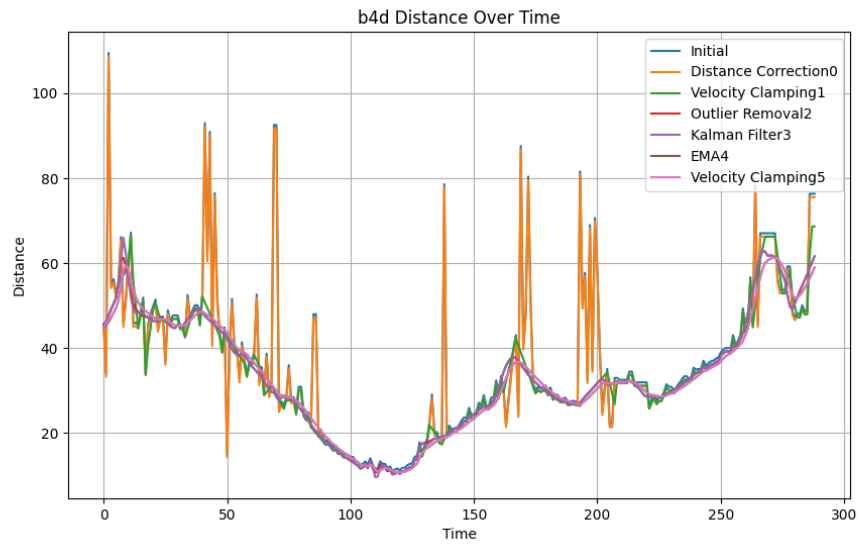


Figure 4: b4d Distance Over Time

## 5 Initial - Ground Truth Comp.

Anchor 1: MAE=5.807 m, RMSE=16.228 m

Anchor 2: MAE=7.066 m, RMSE=11.568 m

Anchor 3: MAE=6.293 m, RMSE=11.253 m

Anchor 4: MAE=6.745 m, RMSE=9.788 m

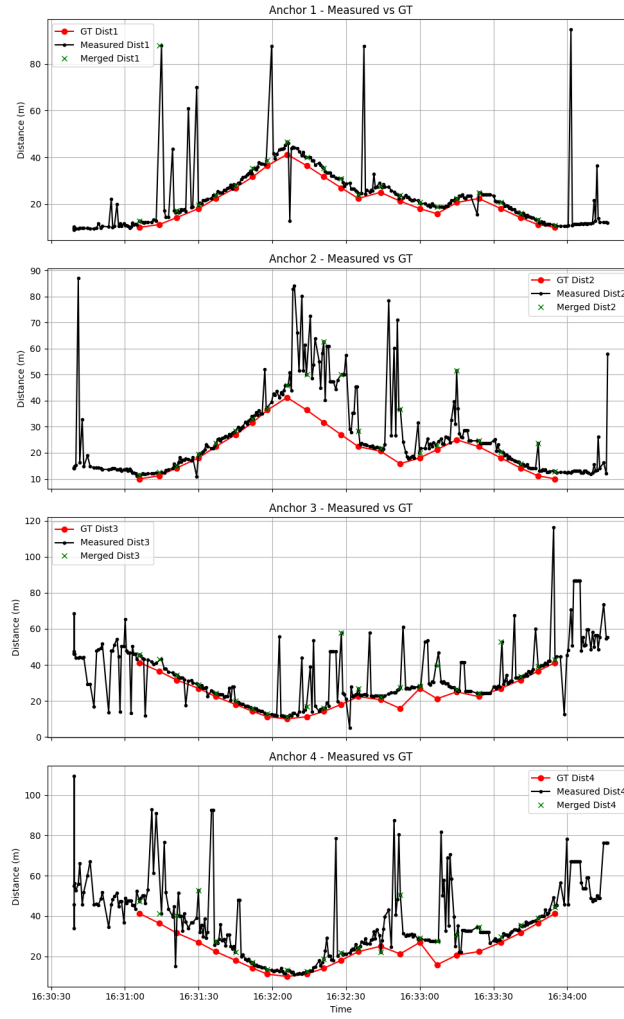


Figure 5: Initial Measured vs GT Distance

## 6 Distance Correction0 - Ground Truth Comp.

Anchor 1: MAE=5.007 m, RMSE=15.960 m

Anchor 2: MAE=6.287 m, RMSE=11.097 m

Anchor 3: MAE=5.493 m, RMSE=10.826 m

Anchor 4: MAE=6.015 m, RMSE=9.275 m

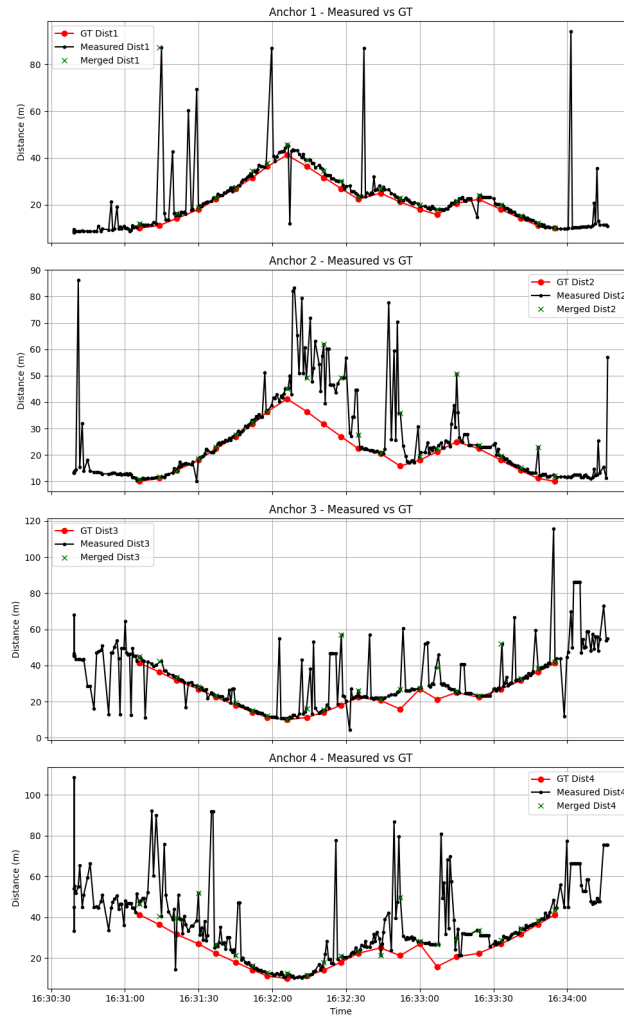


Figure 6: Distance Correction0 Measured vs GT Distance

## 7 Velocity Clamping1 - Ground Truth Comp.

Anchor 1: MAE=1.833 m, RMSE=2.115 m

Anchor 2: MAE=7.067 m, RMSE=11.627 m

Anchor 3: MAE=3.638 m, RMSE=6.016 m

Anchor 4: MAE=5.341 m, RMSE=6.720 m

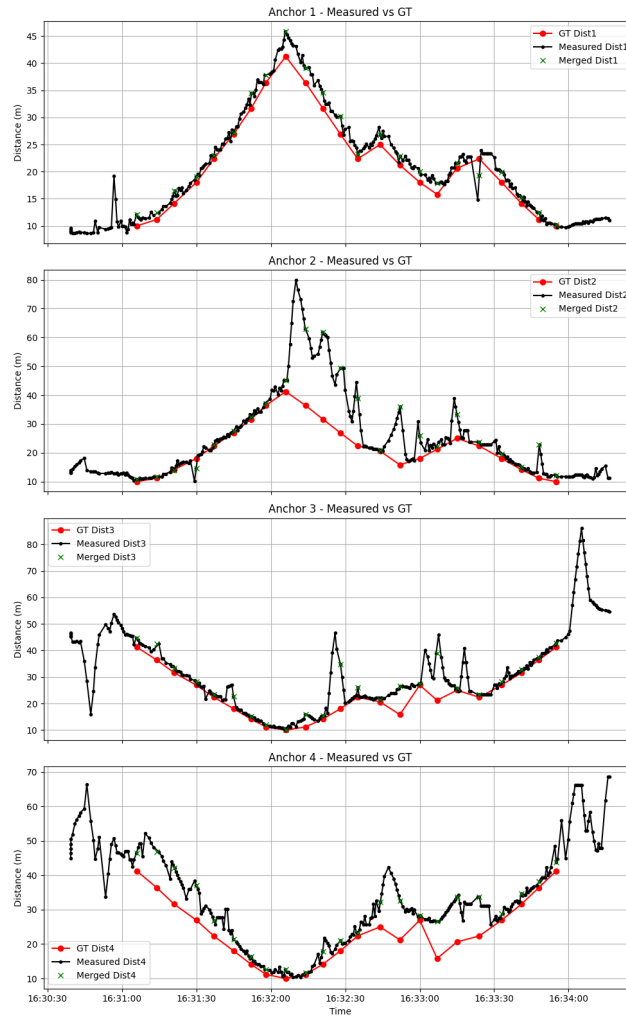


Figure 7: Velocity Clamping1 Measured vs GT Distance



## 8 Outlier Removal2 - Ground Truth Comp.

Anchor 1: MAE=1.654 m, RMSE=1.980 m

Anchor 2: MAE=5.205 m, RMSE=9.048 m

Anchor 3: MAE=3.160 m, RMSE=4.786 m

Anchor 4: MAE=5.356 m, RMSE=6.604 m

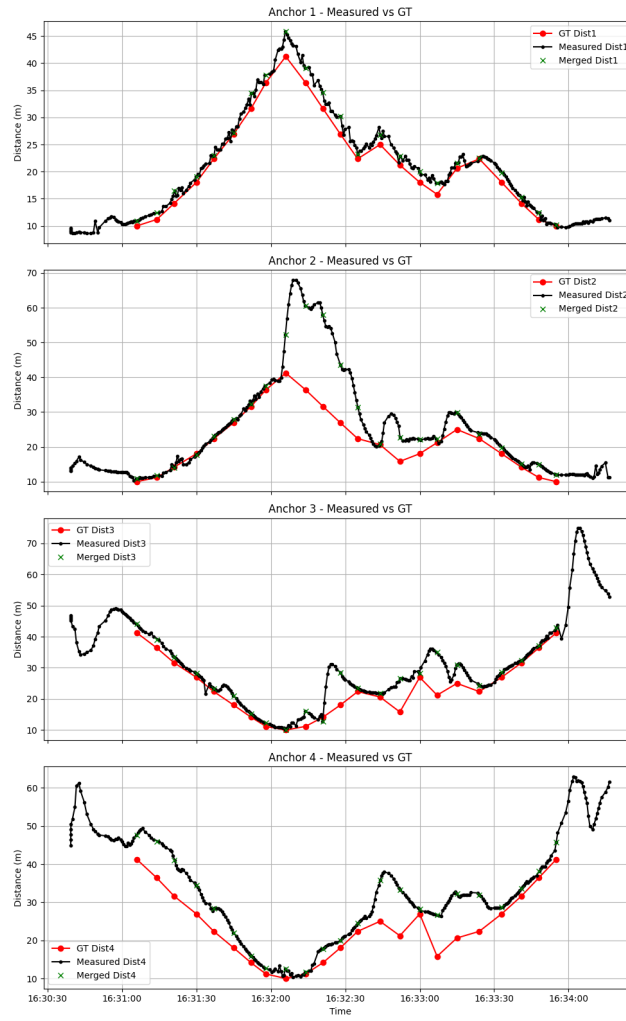


Figure 8: Outlier Removal2 Measured vs GT Distance

## 9 Kalman Filter3 - Ground Truth Comp.

Anchor 1: MAE=1.619 m, RMSE=1.946 m

Anchor 2: MAE=5.222 m, RMSE=9.045 m

Anchor 3: MAE=3.156 m, RMSE=4.736 m

Anchor 4: MAE=5.295 m, RMSE=6.579 m

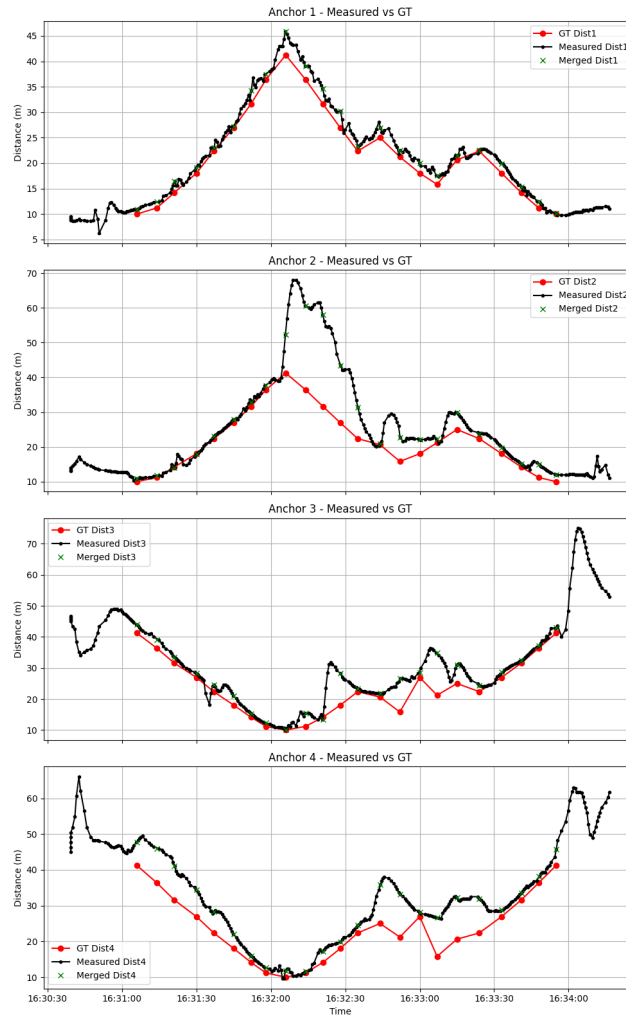


Figure 9: Kalman Filter3 Measured vs GT Distance

## 10 EMA4 - Ground Truth Comp.

Anchor 1: MAE=1.633 m, RMSE=2.072 m

Anchor 2: MAE=5.714 m, RMSE=10.043 m

Anchor 3: MAE=3.208 m, RMSE=4.739 m

Anchor 4: MAE=5.201 m, RMSE=6.703 m

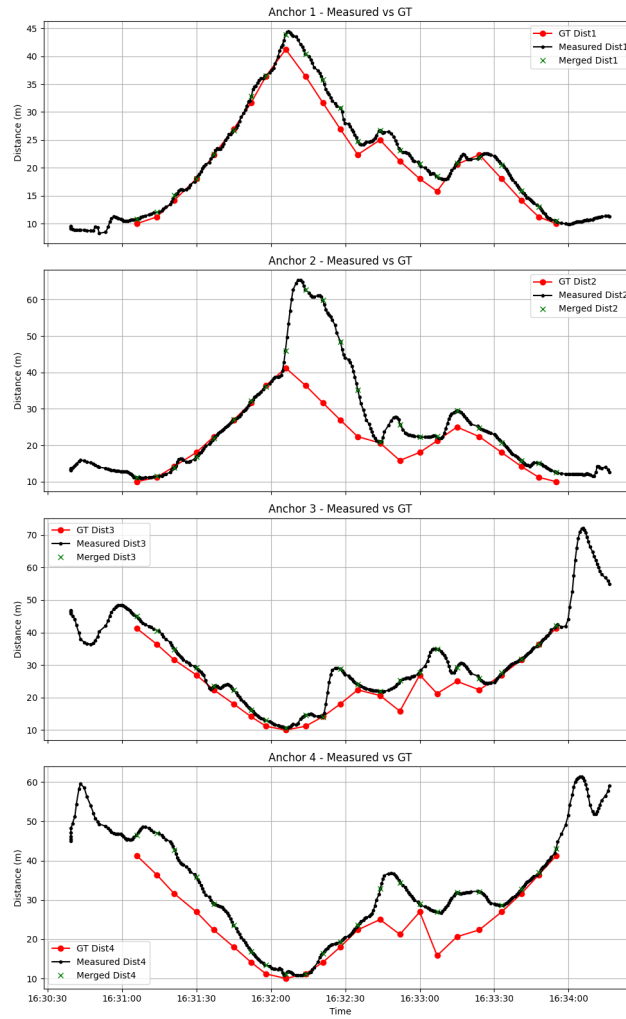


Figure 10: EMA4 Measured vs GT Distance

## 11 Velocity Clamping5 - Ground Truth Comp.

Anchor 1: MAE=1.633 m, RMSE=2.072 m

Anchor 2: MAE=5.714 m, RMSE=10.043 m

Anchor 3: MAE=3.208 m, RMSE=4.739 m

Anchor 4: MAE=5.201 m, RMSE=6.703 m

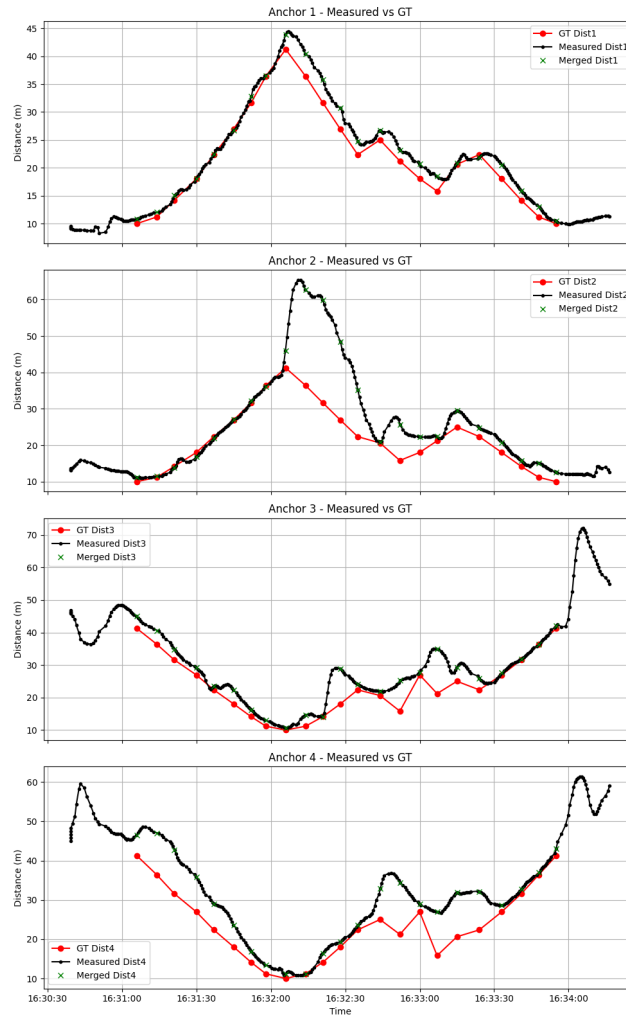


Figure 11: Velocity Clamping5 Measured vs GT Distance

## 12 Ground Truth

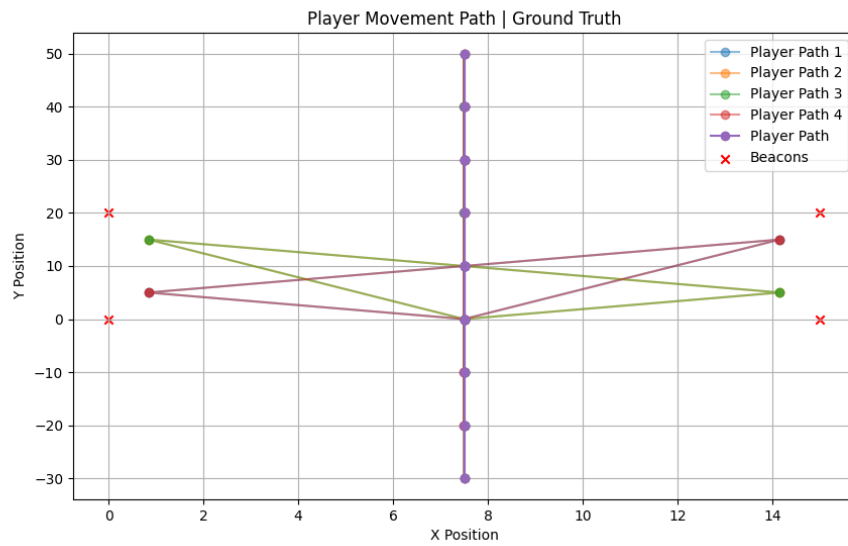


Figure 12: Ground Truth Player Movement Path

## 13 Initial

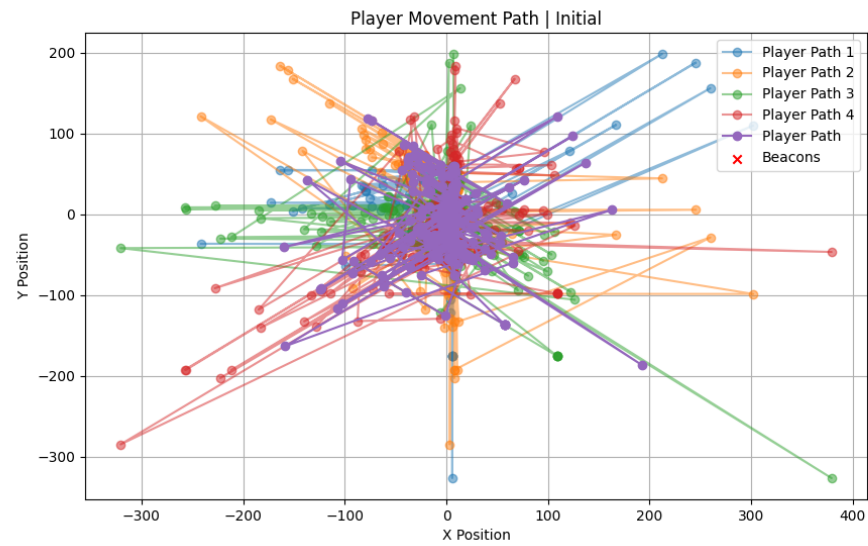


Figure 13: Player Movement Path

## 14 Distance Correction0

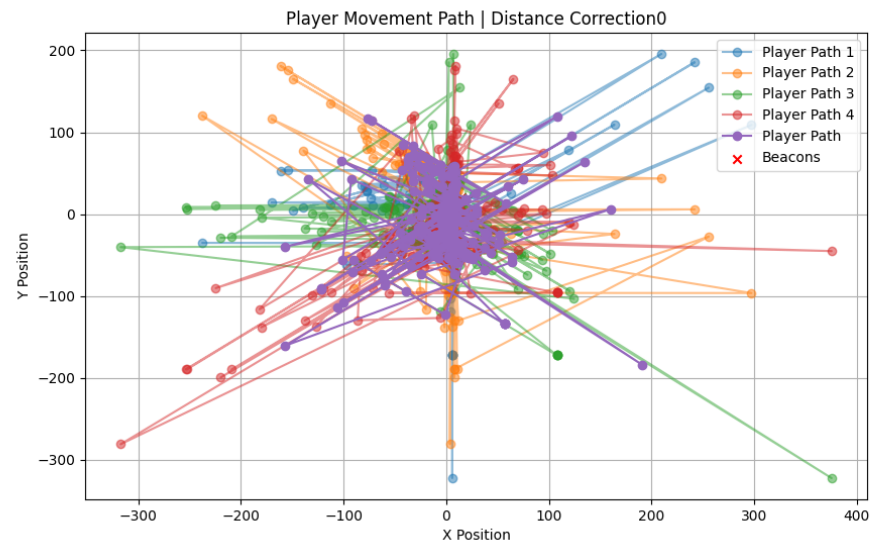


Figure 14: Player Movement Path

## 15 Velocity Clamping1

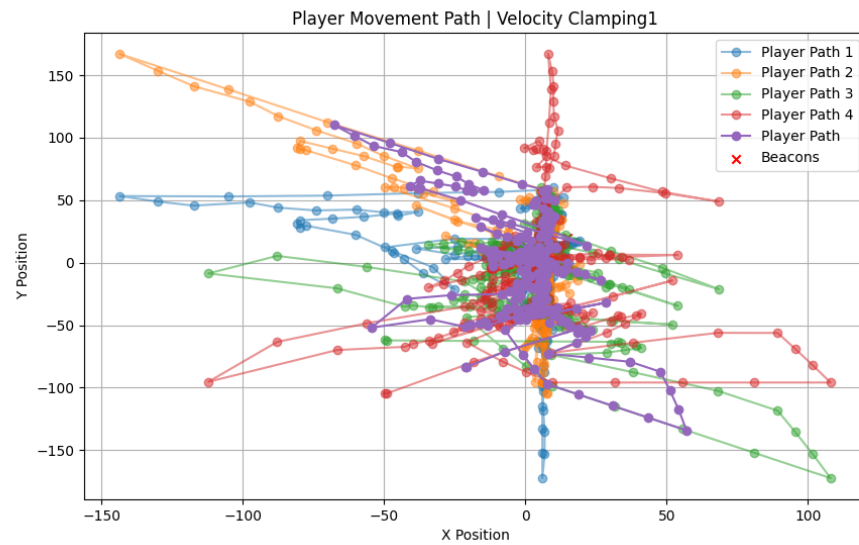


Figure 15: Player Movement Path



## 16 Outlier Removal2

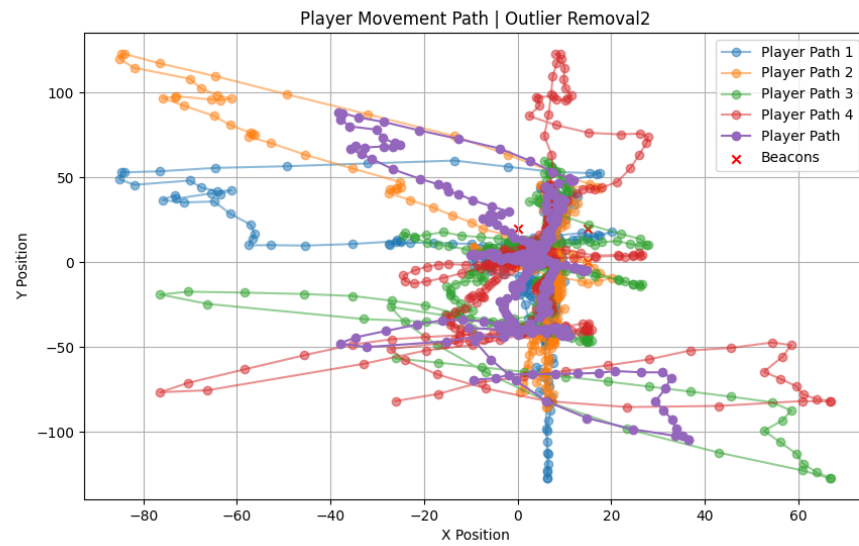


Figure 16: Player Movement Path

## 17 Kalman Filter3

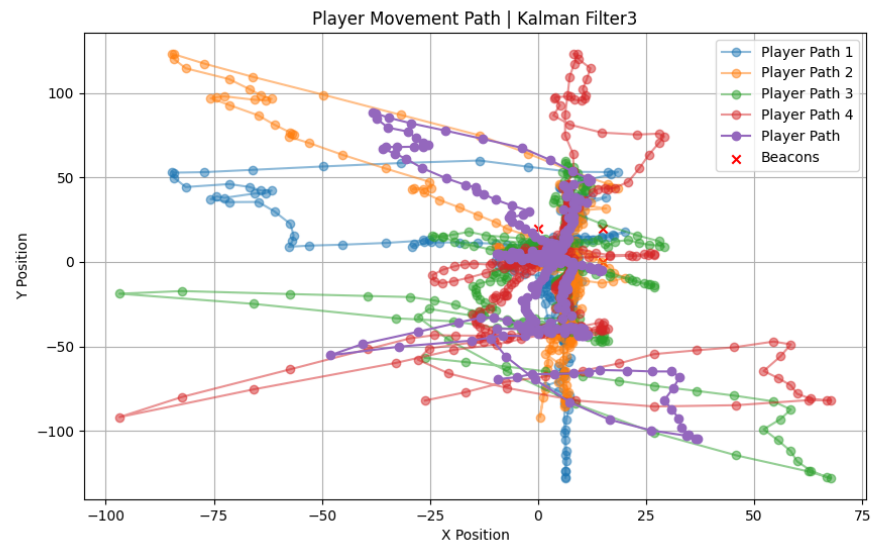


Figure 17: Player Movement Path

## 18 EMA4

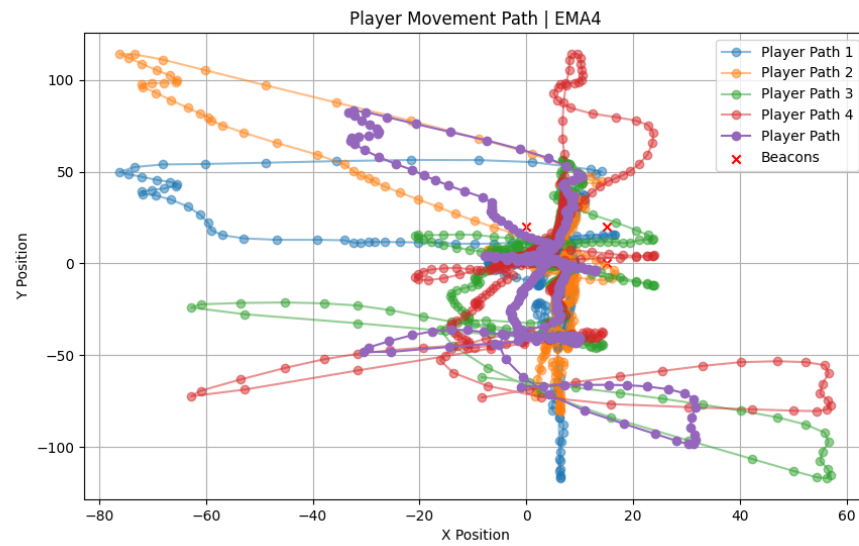


Figure 18: Player Movement Path

## 19 Velocity Clamping5

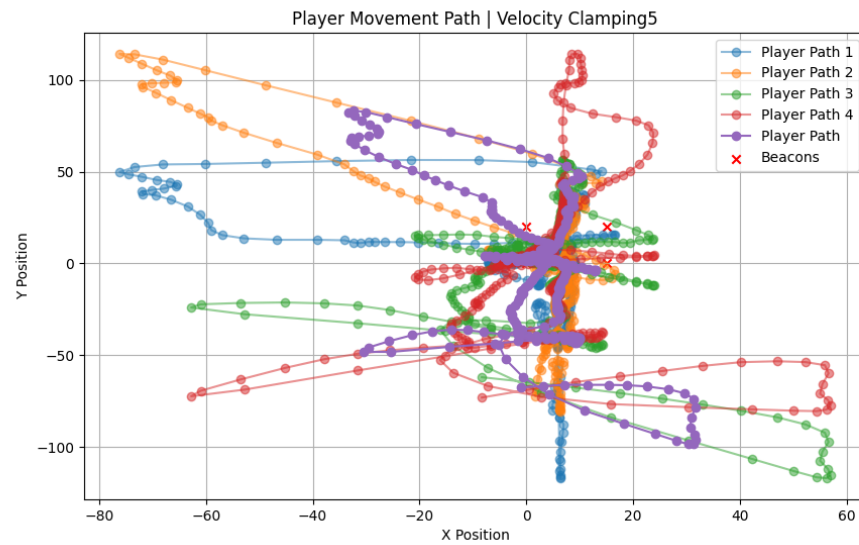


Figure 19: Player Movement Path