synchronization control scheme only need about seven (7) seconds to complete one full track, whereas the FBS one requires about 16 seconds to complete the same lap. These results thus clearly demonstrate the effectiveness of the proposed MBS with synchronization control approach in reducing both the train operational headway and travel time.

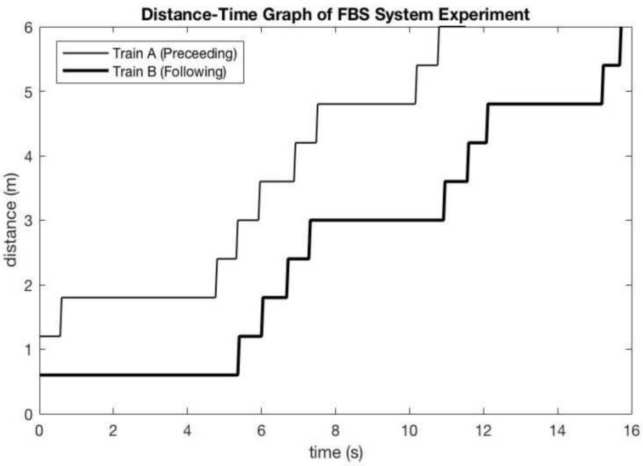

Fig. 10 Position vs. time graph of two trains under FBS scheme.

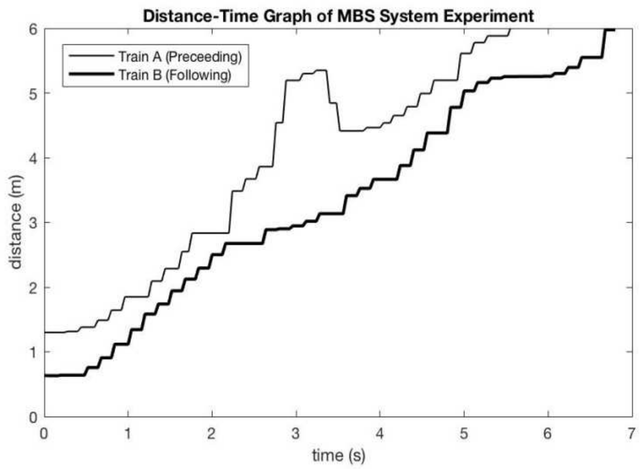

Fig. 11 Position vs. time graph of two trains under MBS scheme.

IV. Conclusion

This paper has reported the experimental results that were obtained when implementing a UKF-based SF approach for train localization and synchronization control of CBTC system under the MBS scheme. The presented localization results showed that the developed UKF-based SF method significantly improve the accuracy of the train position estimation. Furthermore, the experimental results of the MBS scheme implementation under the proposed synchronization control approach successfully reduce the train's operational headways and travel time. These results suggest that the SF-based synchronization control approach has a promising potential to improve the performance of CBTC systems.

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