Situational Awareness: Using Twitter Geolocated Tweets and IBM Watson on a Mobile Device.

Research Proposal

Isaac Callison (ic2d@mtmail.mtsu.edu) Middle Tennessee State University

February 26, 2020

1 Introduction

What situations are you walking into? There is a convergence of powerful technologies that allow for near instantaneous notification of current events. Can a mobile device leverage geolocateed tweets from Twtter, and analysis from IBM's Watson, to produce real-time notification of potentially hazardous situations? That is what this reasearch proposes to elucidate.

2 Specific Aims

- Access the developer consoles and APIs of Twitter and IBM Watson to see if the two technology giants can mesh
- Create an android app that pulls in geolocateed tweets that IBM's Watson can analyze for sentiment and emotion.
- Show a user's current location, and potentially dangerous proximal locations, in a google map on a mobile device.

3 Background

4 Preliminary Results

5 Work Plan

5.1 Aim 1: Hardware Implementation

5.1.1 Objective

- Method:
- Method:

5.1.2 Objective

- Method:
- Method:

5.2 Aim 2: Node Swarm

5.2.1 Objective

• Method: Aim.

5.2.2 Objective

• Method:

5.2.3 Objective

• Method:

6 Broader Impacts

References

- [1] Arora, A. and Arora, M. Digital-information tracking framework using blockchain. Journal of Supply Chain Management Systems, 7(2):1, 2018.
- [2] Cong, L. W. and He, Z. Blockchain disruption and smart contracts. *The Review of Financial Studies*, 32(5):1754–1797, 2019.
- [3] Crosby, M., Pattanayak, P., Verma, S., Kalyanaraman, V., and others,. Blockchain technology: Beyond bitcoin. *Applied Innovation*, 2(6-10):71, 2016.

- [4] Dinh, T. T. A., Liu, R., Zhang, M., Chen, G., Ooi, B. C., and Wang, J. Untangling blockchain: A data processing view of blockchain systems. *IEEE Transactions on Knowledge and Data Engineering*, 30(7):1366–1385, 2018.
- [5] Elrom, E. The Blockchain Developer: A Practical Guide for Designing, Implementing, Publishing, Testing, and Securing Distributed Blockchain-based Projects. Apress, 2019.
- [6] Figorilli, S., Antonucci, F., Costa, C., Pallottino, F., Raso, L., Castiglione, M., Pinci, E., Del Vecchio, D., Colle, G., Proto, A. R., and others,. A blockchain implementation prototype for the electronic open source traceability of wood along the whole supply chain. *Sensors*, 18(9):3133, 2018.
- [7] Hang, L. and Kim, D.-H. Design and implementation of an integrated iot blockchain platform for sensing data integrity. *Sensors*, 19(10):2228, 2019.
- [8] Hasan, H. R. and Salah, K. Blockchain-based proof of delivery of physical assets with single and multiple transporters. *IEEE Access*, 6:46781–46793, 2018.
- [9] Lee, B. and Lee, J.-H. Blockchain-based secure firmware update for embedded devices in an internet of things environment. *The Journal of Supercomputing*, 73(3):1152–1167, 2017.
- [10] Leng, J., Yan, D., Liu, Q., Xu, K., Zhao, J. L., Shi, R., Wei, L., Zhang, D., and Chen, X. Manuchain: Combining permissioned blockchain with a holistic optimization model as bi-level intelligence for smart manufacturing. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 50(1):182–192, 2019.
- [11] Lin, I.-C. and Liao, T.-C. A survey of blockchain security issues and challenges. *IJ Network Security*, 19(5):653–659, 2017.
- [12] Martins, J. P., Ferreira, J. C., Monteiro, V., Afonso, J. A., and Afonso, J. L. Iot and blockchain paradigms for ev charging system. *Energies*, 12(15):2987, 2019.
- [13] Nakamoto, S. and others,. Bitcoin: A peer-to-peer electronic cash system. (2008), 2008.
- [14] Xu, R., Chen, Y., Blasch, E., and Chen, G. Exploration of blockchain-enabled decentralized capability-based access control strategy for space situation awareness. *Optical Engineering*, 58(4):041609, 2019.
- [15] Zheng, W., Zheng, Z., Chen, X., Dai, K., Li, P., and Chen, R. Nutbaas: A blockchain-as-a-service platform. *IEEE Access*, 7:134422–134433, 2019.
- [16] Zheng, Z., Xie, S., Dai, H.-N., Chen, X., and Wang, H. Blockchain challenges and opportunities: A survey. *International Journal of Web and Grid Services*, 14(4):352– 375, 2018.