

# Project Proposal

Project Title: Implementing verification and validation techniques for Adaptive Intelligence system-based car parking

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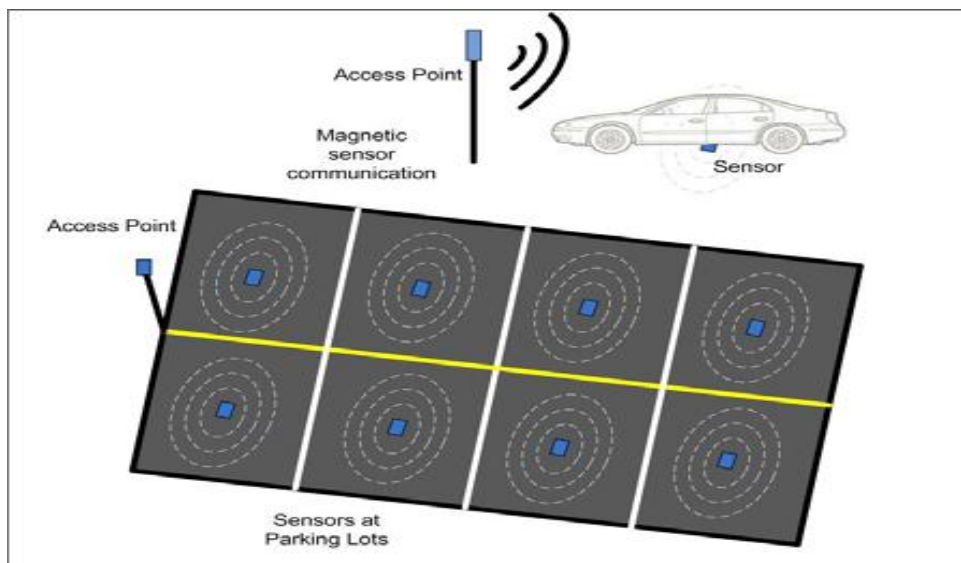
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## Description:

The industrialization and rapid population increase with slow pace city development has created issue of parking space and many related problems. We have dire need for intelligent, secure and efficient system which can guide in parking by searching for unoccupied parking facility. This is part of Intelligent Transportation Systems (ITS). Our goal is to build an AADL model for intelligence system-based car parking system and perform verification and validation techniques. Currently, used parking systems are not efficient as drivers park as per their will and no restrictions. Adaptive intelligence-based car parking system will not just manage operations of parking facility, but also different aspects related to parking. Human Errors are major cause of accidents which can be avoided/minimized through in-car technologies. This will lessen the burden of driver and enhance his car functions. Parking meters based on coins are inefficient as there is manpower involved. This smart parking system will monitor meter and report any violations of parking lot.

## Diagram:

A general case of implementation is shown below:



## Project Timeline:

DATE	MILESTONE
Oct 24, 2018	Requirement and Project Proposal
Oct 31, 2018	Requirement Review Checklist
Nov 7, 2018	Error Annex and Fault Model
Nov 14, 2018	Assurance Case
Nov 21, 2018	Hazard Analysis and Test Plan
Nov 28, 2018	TestCases and Test Report

## References:

1. Zafari, Faheem & Mahmud, S.A. & Khan, Gul Muhammad & Rehman, Mehreen & Zafar, Mohammad. (2013). A Survey of Intelligent Car Parking System. Journal of Applied Research and Technology. 11. 714-726. 10.1016/S1665-6423(13)71580-3.
2. Xu, Jin, Guang Chen, and Ming Xie. "Vision-guided automatic parking for smart car." Intelligent Vehicles Symposium, 2000. IV 2000. Proceedings of the IEEE. IEEE, 2000.
3. [https://doi.org/10.1016/0004-3702\(94\)00004-K](https://doi.org/10.1016/0004-3702(94)00004-K)
4. Ji, Zhanlin, et al. "A cloud-based car parking middleware for IoT-based smart cities: Design and implementation." *Sensors* 14.12 (2014): 22372-22393.