

Web Based Parking Management using RFID Problem Statement

Background:

Finding a parking spot in congested areas especially in major cities like New York City can be a frustrating and daunting task. A motorist may drive around for up to two hours looking for a place to park depending on the time of day. A motorist may find a parking spot just as someone is leaving if you are lucky.

This issue continues even after a motorist has found a parking spot. He or she must scramble for change in order to put money into the parking meter. Some parking meters allow a maximum parking time for up to 2 hrs at a rate of 50c/hr. The parking meters allow you to park for up to 1hr at the cost of \$1.25/hr as motorists get closer to the downtown areas. The motorist must renew his or her meter in order to avoid a parking violation once it expires.

This design project will deliver a working prototype and the documentation necessary to manufacture the device. Manufacturing and after-sales repair will be outsourced. We expect each major city to employ this system within 5 years once they see the cost effectiveness of the system.

The Design: Functional Description of the design.

- The design must be completed and the prototype delivered by April 15th 2005.
- The budget for the prototyped design cannot exceed \$500
- The system will be used in congested areas where parking spots are hard to find
- The vehicle identifier (RFID tag) will need to be small enough to fit on a car and not take a huge amount of room
- The vehicle identifier and reader will need to handle adverse weather conditions such as rain, snow, extreme heat, and still function.
- The range of the vehicle identifier will need to be 10ft. in order for communication between the tag and the reader to take place.
- The reader will need to be able to detect when a car enters a space, when the car leaves a space.
- The detection of the vehicle should happen within a minute.
- The user should not need to interact with the system in order to park in the spot.
- The reader should not trigger when a vehicle passing does not wish to park.
- Account status may be checked at any time using a cell phone.
- The communication between the vehicle identifier and the reader should work flawlessly when the car is parked. Maintenance will be at a minimum. (No user serviceable parts)

Deliverables of the Design Project:

The consultant team hired to do the design will provide deliverables according to the SDP05 schedule. We will answer any questions and provide any additional information needed. We will supply a prototype with one reader and one vehicle identifier.