

# **Initial Specification for an Integrated Car Park System Barrier Control Unit (ICPS-BCU)**

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## *ABSTRACT*

This specification outlines the requirements and constraints for a new Integrated Car Park System Barrier Control Unit. It is proposed that the target hardware for the ICPS will be either ASIC, FPGA or CPLD based and NOT CPU based.

## 1. Overview

It is proposed to develop a car park entry/exit barrier control that can be used for both entry and exit. The system will use LEDs and photo-detectors to detect entry and exit.

## 2. Specification

- a) Only one vehicle may enter or exit from the car park at a time.
- b) No entry may be permitted when the car park is full.
- c) Vehicles may partially enter, or exit, and then reverse.
- d) The detectors will be arranged as in figure (1), below.
- e) The barrier will be raised when a vehicle obscures the first LED, provided that the vehicle is entering the car-park and there is at least one space in the car-park.
- f) The barrier will always be raised on obscuring the first LED when a vehicle is exiting the car-park.

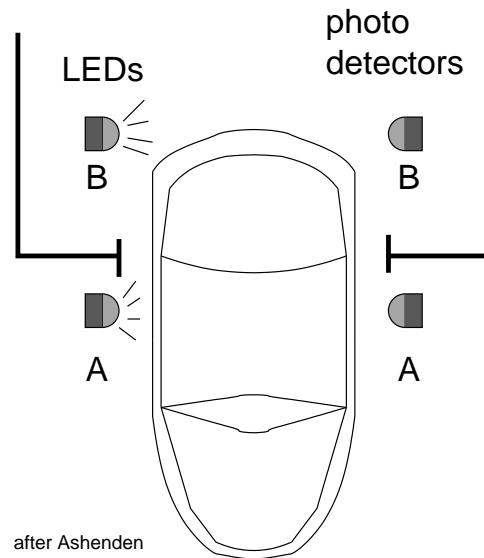


figure (1)

## 3. Additional Specifications and Limitations

The ICPS-BCU should be developed for use in both single entry/exit and multiple entry/exit car-parks. The unit should also provide both increment and decrement output pulses to allow for vehicle counting. The pulses should only be generated when a vehicle has completely entered or exited the car park.