



# System Test Plan

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## System Test Plan

In the following system test plan you will find a step by step process as to how the prototype will behave throughout the duration of the demonstration. Due time constraints we have shortened the demonstration down to show a simulated version as to what will happen in real life. Instead of demonstrating a full two hour parking situation we have condensed the demonstration down into approximately 1 – 2 minutes. The API can be reprogrammed to meet whatever the bylaw time requirements are. This allows the product to be versatile in any parking situation.

- 1) The alternative parking indicator can be seen standing alone. It is wireless and powered via lithium ion batteries.
- 2) As the car approaches the API the user will see the light beginning its colour changing phase
- 3) Here we should note that the default state of the API is set to green meaning available
- 4) The light will fade from green which means that the parking spot is available to blue which means the parking spot has been taken/occupied
- 5) After the car has parked next to the API for an allotted amount of time the light will once again change colours
- 6) For a typical 2H parking the light will go from blue to yellow at 1H 45min giving the user 15 minutes to return to the car. For demo day you will find that this 2H window has been condensed to 2 minutes.
- 7) At approximately 45 – 55 seconds you will see the light go from blue to yellow
- 8) The car is officially in the warning stage once the light has turned yellow
- 9) At around 1:00 to 1 minute ten seconds you will see the car turn from yellow to red
- 10) Red tells the user that the car is now in direct violation of the bylaws. The user has surpassed his/her parking limit for that parking spot
- 11) The car drives away
- 12) The light fades back to green indicating to any future users that parking spot is once again available.

Above are the steps that are to be carried out at the demonstration to test the overall system. On a fundamental level however the system is doing many things that the user is not aware of. To the human eye we see colours changing from one to another. The visual feedback plays into natural psychology where green mean “good”, yellow mean “caution” and red means “danger”. Not only is the psychology working behind the scenes so too is the microelectronics.

Although the following has been tested several times we can also note that if the car leaves at any instant in time the light will revert back to green. The following will not be tested on demo day however we can also take the following things into consideration with regards to versatility, operability and reliability:

- a) If the light is blue and the user decides to leave the light will go back to green indicating that the parking spot is once again available
- b) If the user drives past the API the light may fade to blue temporarily however it will once again go back to green
- c) If the user happens to return while the light is yellow and drives away the light will once again turn green indicating to the next user that the parking spot is available
- d) If the user leaves in between a transition state for example from blue to yellow, the light will complete its transition and then go back to green indicating to the any future users that the parking spot is once again available.

Based on the steps carried out 1 – 11 the user will see that the system is very effective at communicating powerful information through the use of colours. The idea in conjunction with a mobile application will not only revolutionize parking it will also allow the world to be a more efficient place.

