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| mehsiemens.de/traffic |
| 3rd Party Controllers Interface With SmartGuard  Conception Requirements  Version 1.0 |



Table of Contents

[1. Introduction 6](#_Toc429399294)

[2. Limitations (Outline) 7](#_Toc429399295)

[3. System Architecture 8](#_Toc429399296)

Version

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\*c=change/w=review/r=release

Abbreviations and Description

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| Abbreviation | Comment |
| GSM | Global System for Mobile Communications |
| OCIT | Open Communication Interface for Road Traffic Control Systems |
| APN | Access Point Name |
| VPN | Virtual Private Network |
| OCPI | Open Content Provider Interface |
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References

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Document | Content | Where to find? |
| 1 | OCIT-C | Specification | <http://www.ocit.org/OCIT-C.htm> |
| 2 | Sitraffic smartGuard Brochure | Sitraffic smartGuard System Description and Specifications | <http://www.mobility.siemens.com/mobility/global/SiteCollectionDocuments/en/road-solutions/urban/traffic-control-center/sitraffic-smart-guard-en.pdf> |
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# Introduction

Sitraffic smartGuard is a system that allows full access to the new Sitraffic sX traffic controller with convenient functions for ease of handling and overviews as well as a graphical user interface that helps the user easily locate any required information.

Older controllers cannot connect with this system because they lack the necessary communication protocols. With this problem in mind, we are developing a solution of hardware and software that would enable these controllers to be represented in smartGuard, though with limited functionality.

The objective of this project is to provide an interface M2M as an alternative that allows us to access the controller's low level electronics and a two way communication between smartGuard and the controllers.

# Limitations (Outline)

This document is meant to explain the technical aspects of the solution for the specific scenario of connecting a traffic controller to smartGuard. It's possible to adapt the same concept and architecture to work with more types of equipment, if they provide similar functionality as the equipment that is already supported by smartGuard.

# System Architecture

Considering the current system in place, smartGuard, along with its features that allow a high level of control and customization over Siemens controllers, a solution was developed to provide similar functionality to other third party controllers.

The developed electrical board opens the possibility for two way communication from the controller to smartGuard using a Siemens supported communication protocol.

The PCB board is wired directly into the cabinet connections and translates the electrical signals into messages to be sent by an APN network (IP) to the converter. By reading the electrical pulses the board is able understand the status of the controller. This is done by measuring the voltage of outputs (Ex: yellow light) and inputs (Ex: energy to the controller). The microprocessor on the board will define what data to send, following the programming developed by Siemens. To handle the communications the electrical board will have an integrated MC55i modem.

The modem will use an APN network to send the information to the converter server, the configuration of the messages sent by the modem is done using AT commands in the code of the microprocessor. The converter server will be inside the Siemens network, with a firewall configured to allow interactions with the converter application. Each modem will have a data enabled SIM card and will need 500MB traffic.

The data will be stored in the converter server, a costume OCPI-2 server java application, and is organized using an already existent data type (IntersectionStatus). The converter is built to communicate with smartGuard using OCPI data types already known to the software.

