BSI Standards Publication

Intelligent transport systems (ITS) — Nomadic device service platform for micro-mobility

Part 1: General information and use case definitions

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National foreword

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Foreword

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

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Introduction

ISO/TC 204/Working Group 17, *Nomadic Devices in ITS systems*, is designed to facilitate the development, promotion and standardisation of the use of nomadic and portable devices to support ITS service provisions and multimedia use, e.g. passenger information, automotive information, driver advisory and warning systems, and entertainment system interfaces to ITS service providers and motor vehicle communication networks. This document fosters the introduction of nomadic devices in the public transport and automotive world.

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1 Scope

This document provides the service framework to identify the connectivity between nomadic devices, cloud servers and micro-mobility in pre-trip, en-route and post-trip. The service framework can promote micro-mobility as a new type of urban and rural transport mode and increase the possibility to be included in an integrated mobility system.

Micro-mobility can be defined as a small or compact sized electric vehicle. Normally, it is designed to be used as a first-mile and last-mile service connecting public transit routes or to provide personal mobility with one or two passengers for a short distance trip. The vehicle types of micro-mobility are very wide, including three or four wheeled micro electric vehicle, electric utility task vehicle, electric bike, electric kick scooter, electric skateboard, and electric self-balancing unicycles. This document focuses on three or four wheeled micro electric vehicle.

The nomadic device service framework aims to accommodate the specific needs of integrated mobility services for either urban or rural areas. The service framework focuses on the use of data exchange interface standards between micro-mobility and nomadic devices to enable the development of cloud-based intelligent transport systems (ITS) using wireless networks.

A nomadic device needs to be connected with micro-mobility reliably and consistently. In addition, it is necessary to provide power supply interface for stable nomadic device operation.

The service framework and use cases described in this document include:

— The service framework architecture between nomadic devices, micro-mobility and cloud servers.

— Use cases that are are divided into three categories including pre-trip, en-route, and post-trip:

  — Pre-trip service configuration: the pre-trip use cases provide micro-mobility information, on-demand navigation service with charging station and available parking lots, and reserving micro-mobility car sharing services.

  — En-route service configuration: the en-route use cases provide ITS information, e.g. traffic conditions, safety information, and toll service. The use cases also provide information on available parking lots and charging stations when the micro-mobility vehicle approaches a destination.

  — Post-trip service configuration: the post-trip use cases provide micro-mobility driving records, battery level, parking location information, and a return service for shared micro-mobility.

— Guidance documents to facilitate the practical implementation of diverse ITS service providers including related use cases.

This work includes the identification of existing ISO/TC 204 International Standards in ITS and existing vehicle communication network access standards.