signs with smart connectivity for better road safety

Requirement Analysis and Specification

Requirement Analysis:

Requirement analysis results in the specification of operational characteristics of software: indicates interface of software with other system elements and establishes constrains the software must meet. Requirement analysis allows the software engineer to elaborate on basic requirement established during earlier requirement engineering tasks and build models that depict user scenarios, functional activities, problem classes and their relationships, system and class behavior and flow of data as it is transformed.

Existing System

The early effects to prevent road accidents and to ensure road safety includes the use of speed detection devices,CCTVs,speed limiters and emergency accident units as the first phase.Despite achieving the state-of-the-art performance, the existing systems suffer from two main problems,

- Over Speed : These systems cannot control speed at some specific zones.
- Exact location of accident occured: These systems cannot give the precise location of

  Accident

Requirement Specification:

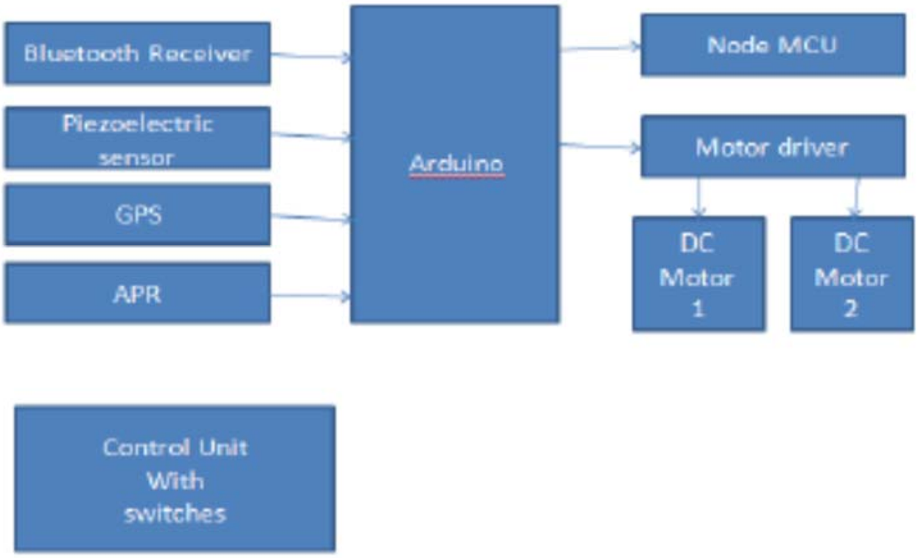
1. **Functional Requirements**

n software engineering and system engineering, functional requirement defines function of a system and its components. A function is described as a set of inputs, the behavior and outputs. Functional requirements may be calculations, technical details, data manipulation and processing and other specific functionality that define what a system is supposed to accomplish. Behav-ioral requirements describing all the cases where the system uses the functional requirements are captured in use cases. Functional requirements are supported by non-functional requirements (also known as quality requirements), which impose constraints on the design or implementation (such as performance requirements, security, or reliability). Generally, functional requirements are expressed in the form ”system must do requirement”, while non-functional requirements are ”system shall be requirement”. The plan for implementing functional requirements is detailed in the system design. The plan for implementing non-functional requirements is detailed in the system architecture. As defined in requirements engineering, functional requirements spec-ify particular results of a system. This should be contrasted with nonfunctional requirements which specify overall characteristics such as cost and reliability. Functional requirements drive the application architecture of a system, while non-functional requirements drive the technical architecture of a system. This system does:

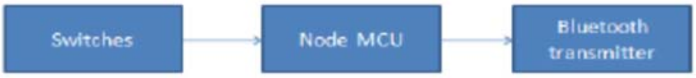
- Any vehicle entering the network zone cannot overcome the speed limit defined by the sys-tem and the controls will be automatically taken by the use of a wireless local area network

2.Non-Functional Requirements:

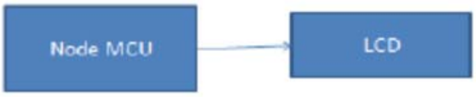
In systems engineering and requirements engineering, a non-functional requirement (NFR) is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with functional requirements that define specific behavior or functions. The plan for implementing functional requirements is detailed in the system design. The plan for implementing nonfunctional requirements is detailed in the system architecture, because they are usually Architecturally Significant Requirements. Broadly, func-tional requirements define what a system is supposed to do and non-functional requirements define how a system is supposed to be. Functional requirements are usually in the form of ”system shall do requirement”, an individual action or part of the system, perhaps explicitly in the sense of a mathematical function, a black box description input, output, process and control functional model or IPO Model. In contrast, non-functional requirements are in the form of ”system shall be requirement”, an overall property of the system as a whole or of a particular aspect and not a specific function. The system’s overall properties commonly mark the difference between whether the development project has succeeded or failed. Non-functional requirements are often called ”quality attributes” of a system. Other terms for non-functional requirements are ”qualities”, ”quality goals”, ”quality of service requirements”, ”constraints” and ”non-behavioral requirements”.. Qualities—that is non-functional requirements—can be divided into two main categories: Execution qualities, such as safety, security and usability, which are observable during operation (at run time). Evolution qualities, such as testability, maintainability, extensibility and scalability, which are embodied in the static structure of the system.



Road Side



Other vehicle


Node MCU
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