Specification for My Robot

# Functional Requirements

Following is the list of functional requirements for ‘The Robot’, hereafter referred to as ‘System’:

|  |  |
| --- | --- |
| **Req. ID** | **Requirement** |
| RQ0001 | The system will remain in lowest power consuming mode (IDLE\_STATE) unless instructed to perform any action  Related: SF0001 |
| SF0001 | When system is in IDLE\_STATE, all mechanical functions must be safe stated, i.e., in case of any system malfunction, the mechanical functions should cause no harm to the surroundings or living beings |
| RQ0002 | An always enabled wireless connection to a secure and trusted server  Security will drive whether the server is local (not always connected to internet), or the server is cloud based. This will then determine if this wireless connectivity can be Bluetooth based, or must be WIFI type |
|  | Battery monitoring |
|  | Regenerative braking if efficient |
|  | Voice Control |
|  | Vision capability |
|  | Ability to carry small items across the house |
|  | Clean the house |
|  | Diagnostics and self-test |

# Design Hints

## Multitasking

* Consider using cooperative multitasking instead of preemptive: <https://www.forward.com.au/pfod/ArduinoProgramming/RealTimeArduino/index.html>