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|  | Appendix C - Traceability Matrix TM2.1 | | |  |  |
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| P | Problems | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| P 3.1.1.1 | People with communication disabilities have problems communicating | n/a | G 3.1.2.1 |  |  |
| P 3.1.1.2 | It’s hard to communicate messages to people with certain communication disabilities | n/a | G 3.1.2.2 |  |  |
| P 3.1.1.3 | Communication aids can be expensive | n/a | G 3.1.2.3 |  |  |
| P 3.1.1.4 | Communication aids can be socially inhibiting | n/a | G 3.1.2.3 |  |  |
| P 3.1.1.5 | People may deny their disabilities | n/a | G 3.1.2.3 |  |  |
| P 3.1.1.6 | Communication aids can be unattractive | n/a | G 3.1.2.3 |  |  |
| P 3.1.1.7 | Some communication aids are not portable | n/a | G 3.1.2.4 |  |  |
| P 3.1.1.8 | Placing emergency calls on a smartphone can be difficult | n/a | G 3.1.2.5 |  |  |
|  |  |  |  |  |  |
| G | Goals | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| G 3.1.2.1 | Helping the elderly communicate with others | P 3.1.1.1 | C-D1 through C-D4, C-D6 through C-D9, C-D11 through C-D12, C-FR1, C-FR2, C-FR4 through C-FR9, C-NFR1 through C-NFR11, I-D 2.1.14, I-FR 2.2.15, I-FR 2.2.17.5, I-FR 2.2.17.5.x, I-FR 2.2.17.5.1.1, I-FR 2.2.17.5.1.1.x, I-FR 2.2.21 |  |  |
| G 3.1.2.2 | Helping others communicate with the elderly | P 3.1.1.2 | C-D1, C-D2, C-D5 C-D12, C-D13, C-FR7, C-NFR1, C-NFR4, C-NFR8, C-NFR10, C-NFR11, I-D 2.1.14, I-FR 2.2.19, I-FR 2.2.20 |  |  |
| G 3.1.2.3 | Alternative to hearing aids | P 3.1.1.3, P 3.1.1.4, P 3.1.1.5, P 3.1.1.6 | I-D 2.1.13, I-D 2.1.14, I-FR 2.2.21 |  |  |
| G 3.1.2.4 | Portable Solution | P 3.1.1.7 | I-D 2.1.13 |  |  |
| G 3.1.2.5 | Handling emergency situations | P 3.1.1.8 | C-D10, C-FR3, C-NFR8, I-D 2.1.13, I-FR 2.2.15 |  |  |
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|  |  |  |  |  |  |
| C-D | Customer Domain Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| C-D1 | Target Customer | G 3.1.2.1, G 3.1.2.2, G 3.1.2.3 | I-D 2.1.1 |  |  |
| C-D2 | Disabilities | G 3.1.2.1, G 3.1.2.2 | I-D 2.1.2, I-D 2.1.2.x |  |  |
| C-D3 | Living Situation | G 3.1.2.1 | I-D 2.1.3 |  |  |
| C-D4 | Daily Activities | G 3.1.2.1 | I-D 2.1.5 |  |  |
| C-D5 | Assistive Person | G 3.1.2.2 | I-D 2.1.6 |  |  |
| C-D6 | Greetings and Questions | G 3.1.2.1 | I-D 2.1.6, I-D 2.2.14 |  |  |
| C-D7 | Multi-Dimensional Vocabulary | G 3.1.2.1 | I-D 2.1.7, I-D 2.1.7.x |  |  |
| C-D8 | Other Activities | G 3.1.2.1 | I-D 2.1.8 |  |  |
| C-D9 | Category Definition | G 3.1.2.1 | D 3.2.9 |  |  |
| C-D10 | Emergency Situations | G 3.1.2.5 | I-D 2.1.10 |  |  |
| C-D11 | Usable | G 3.1.2.1 | I-D 2.1.10 |  |  |
| C-D12 | Search | G 3.1.2.1, G 3.1.2.2 | I-D 2.1.11 |  |  |
| C-D13 | Navigation of the System | G 3.1.2.1, G 3.1.2.2 | I-D 2.1.12 |  |  |
|  |  |  |  |  |  |
| C-FR | Customer Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| C-FR1 | Select and Navigate Through Categories | G 3.1.2.1 | I-FR 2.2.1, I-FR 2.2.2, I-FR 2.2.4, I-FR 2.2.5, I-FR 2.2.6 |  |  |
| C-FR2 | Generate Sentences, Represent Them Pictorially and Orally | G 3.1.2.1 | I-FR 2.2.7, I-FR 2.2.17.1, I-FR 2.2.16, I-FR 2.2.18, I-FR 2.2.21 |  |  |
| C-FR3 | Place Emergency Calls and Messages | G 3.1.2.5 | I-FR 2.2.8, I-FR 2.2.8.x |  |  |
| C-FR4 | Give Each Picture Meaning | G 3.1.2.1 | I-FR 2.2.9 |  |  |
| C-FR5 | Search Interface | G 3.1.2.1 | I-FR 2.2.3 |  |  |
| C-FR6 | Customize Colors and Icon Sizes | G 3.1.2.1 | I-FR 2.2.10, I-FR 2.2.11 |  |  |
| C-FR7 | Integrate Available Technologies Meaningfully | G 3.1.2.1, G 3.1.2.2 | I-FR 2.2.12, I-FR 2.2.12.1 |  |  |
| C-FR8 | Repeat Previous Sentences | G 3.1.2.1 | I-FR 2.2.14, I-FR 2.2.17.3, I-FR 2.2.17.3.1, I-FR 2.2.14 |  |  |
| C-FR9 | Display Relevant / Frequently Used Items First | G 3.1.2.1 | I-FR 2.2.13, I-FR 2.2.14 |  |  |
|  |  |  |  |  |  |
| C-NFR | Customer Non-Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| C-NFR1 | Usable System | G 3.1.2.1, G 3.1.2.2 | I-NFR 2.3.1 |  |  |
| C-NFR2 | Quick to Understand System | G 3.1.2.1 | I-NFR 2.3.2 |  |  |
| C-NFR3 | Clear and Intuitive Vocabulary | G 3.1.2.1 | I-NFR 2.3.3 |  |  |
| C-NFR4 | Seamless and Evident Navigation for All Users | G 3.1.2.1, G 3.1.2.2 | I-NFR 2.3.4 |  |  |
| C-NFR5 | Minimal Number of Clicks to Generate Sentences | G 3.1.2.1 | I-NFR 2.3.6 |  |  |
| C-NFR6 | Dynamic, Flexible Sentence Generation | G 3.1.2.1 | I-NFR 2.3.5 |  |  |
| C-NFR7 | Reflect the way customers communicate in the real world | G 3.1.2.1 | I-NFR 2.3.7 |  |  |
| C-NFR8 | System Performance: Minimal Elapsed Time, Fast and Accurate Emergency Calls | G 3.1.2.1, G 3.1.2.2, G 3.1.2.5 | I-NFR 2.3.8, I-NFR 2.3.9 |  |  |
| C-NFR9 | Accurate Sentence Building | G 3.1.2.1 | I-NFR 2.3.10 |  |  |
| C-NFR10 | Customizable System | G 3.1.2.1, G 3.1.2.2 | I-NFR 2.3.11, I-NFR 2.3.11.x |  |  |
| C-NFR11 | Extensible System | G 3.1.2.1, G 3.1.2.2 | I-NFR 2.3.12 |  |  |
|  |  |  |  |  |  |
| I-D | Issues - Domain Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) | Backward Traceability (Within Issues) | Forward Traceability (Within Issues) |
| I-D 2.1.1 | Target Customer | C-D 1 | D 3.2.1 | I-D2 | I-D11 |
| I-D 2.1.2 | Disability Definition | C-D 2 | D 3.2.2 |  | I-D1, I-D3, I-D4, I-D5, I-D6, I-D7, I-D8, I-D11 |
| I-D 2.1.2.1 | Speech Loss Definition and Extent | C-D 2 | D 3.2.2 | I-D2 |  |
| I-D 2.1.2.2 | Hearing Loss | C-D 2 | D 3.2.2 | I-D2 | I-FR 2.2.9, I-NFR 2.3.8 |
| I-D 2.1.2.3 | Vision Loss | C-D 2 | D 3.2.2 | I-D2 | I-D8, I-D17, I-FR 2.2.6, I-FR 2.2.9, I-NFR 2.3.8 |
| I-D 2.1.2.4 | Memory Loss | C-D 2 | D 3.2.2 | I-D2 |  |
| I-D 2.1.2.5 | Motor Difficulties | C-D 2 | D 3.2.2 | I-D2 |  |
| I-D 2.1.2.6 | Reading Disabilities | C-D 2 | D 3.2.2 | I-D2, I-D5 |  |
| I-D 2.1.3 | Living Situation | C-D 3 | D 3.2.3 | I-D2 |  |
| I-D 2.1.4 | Daily Activities | C-D 4 | D 3.2.4 |  | I-FR 2.2.1 |
| I-D 2.1.5 | Assistive Person | C-D 5 | D 3.2.5 | I-D1, I-D2 | I-D17, I-FR 2.2.3, I-FR 2.2.17.5.2, |
| I-D 2.1.6 | Greetings | C-D 6 | D 3.2.6 |  |  |
| I-D 2.1.7 | Multi-Dimensional Vocabulary | C-D 7 | D 3.2.7 |  | I-D14, I-D15, I-D16, I-D17, I-D18, I-FR 2.2.2 |
| I-D 2.1.7.1 | Pictures | C-D 7 | D 3.2.7 | I-D13 | I-FR 2.2.17.2 |
| I-D 2.1.7.2 | Icons | C-D 7 | D 3.2.7 | I-D13 | I-D17, I-FR 2.2.4, I-FR 2.2.9, I-FR 2.2.11, I-FR 2.2.16, I-FR 2.2.17, I-NFR 2.3.8 |
| I-D 2.1.7.3 | Speech | C-D 7 | D 3.2.7 | I-D13 | I-NFR 2.3.8, I-NFR 2.3.11.3 |
| I-D 2.1.7.4 | Text | C-D 7 | D 3.2.7 | I-D13, I-D11, I-D15, I-D5, I-FR 2.2.10, I-FR 2.2.11 | I-FR 2.2.9, I-FR 2.2.17, I-FR 2.2.17.5.1.1, I-FR 2.2.17.5.3, I-FR 2.2.18 |
| I-D 2.1.7.5 | Sign | C-D 7 | D 3.2.7 | I-D13 |  |
| I-D 2.1.8 | Other Activities | C-D 8 | D 3.2.8 |  | I-FR 2.2.1 |
| I-D 2.1.9 | Emergency Situations | C-D 10 | D 3.2.10 |  | I-FR 2.2.8.1 |
| I-D 2.1.10 | Usable | C-D 11 | D 3.2.1 | I-NFR 2.3.1 |  |
| I-D 2.1.11 | Search | C-D 12 | D 3.2.7, D 3.2.9 | I-FR 2.2.3 |  |
| I-D 2.1.12 | Navigation of the System | C-D 13 | D 3.2.7, D 3.2.9 | I-NFR 2.3.4 |  |
| I-D 2.1.13 | Platform | G 3.1.2.3, G 3.1.2.4, G 3.1.2.5 | D 3.2.1, D 3.2.3 |  |  |
| I-D 2.1.14 | Questions | C-D6 | D 3.2.11 |  |  |
|  |  |  |  |  |  |
| I-FR | Issues - Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) | Backward Traceability (Within Issues) | Forward Traceability (Within Issues) |
| I-FR 2.2.1 | Proper Categories | C-FR1 | FR 3.3.1 | I-D 2.1.4, I-D 2.1.8, I-NFR 2.3.11.2 | I-FR 2.2.13, I-NFR 2.3.5 |
| I-FR 2.2.2 | Various Dimensions of Vocabulary | C-FR1 | FR 3.3.2 | I-D 2.1.7 | I-FR 2.2.21, NFR 2.3.11.2 |
| I-FR 2.2.3 | Search | C-FR5 | n/a | I-D 2.1.5 | I-D 2.1.11 |
| I-FR 2.2.4 | Navigation - Forward | C-FR1 | FR 3.3.3 | I-D 2.1.7.2, I-NFR 2.3.6 | I-FR 2.2.7, I-FR 2.2.8.2, I-FR 2.2.13, I-FR 2.2.16, I-FR 2.2.17, I-FR 2.2.18, I-NFR 2.3.5 |
| I-FR 2.2.5 | Navigation - Back | C-FR1 | FR 3.3.3 |  |  |
| I-FR 2.2.6 | Icon Navigation | C-FR1 | FR 3.3.4 | I-D 2.1.2.3, I-FR 2.2.6 | I-FR 2.2.7, I-FR 2.2.8.2, I-FR 2.2.18, I-NFR 2.3.1 |
| I-FR 2.2.7 | Sentence Generation | C-FR2 | FR 3.3.5, NFR 3.4.5 | I-FR 2.2.4, I-FR 2.2.6 | I-FR 2.2.1.18, I-NFR 2.3.5 |
| I-FR 2.2.8 | Emergency | C-FR3 | FR 3.3.6.1, FR 3.3.6.2 |  | I-FR 2.2.8.1, I-FR 2.2.8.2, I-NFR 2.2.9 |
| I-FR 2.2.8.1 | Emergency List | C-FR3 | FR 3.3.6.1, FR 3.3.6.2 | I-D 2.1.9, I-FR 2.2.8 | I-FR 2.2.8.2, I-NFR 2.3.10 |
| I-FR 2.2.8.2 | Emergency Reaction | C-FR3 | FR 3.3.6.1, FR 3.3.6.2 | I-FR 2.2.4, I-FR 2.2.6, I-FR 2.2.8, I-FR 2.2.8.1 |  |
| I-FR 2.2.9 | Meaning | C-FR4 | FR 3.3.7 | I-D 2.1.2.4, I-D 2.1.7.2, I-D 2.1.7.3, I-D 2.1.7.4, I-FR 2.2.21, I-NFR 2.3.11.2, NFR 2.3.11.3 | I-NFR 2.3.1, I-NFR 2.3.11 |
| I-FR 2.2.10 | Color | C-FR6 | FR 3.3.8 |  | I-D 2.1.7.4, I-FR 2.2.17, I-FR 2.2.18, I-NFR 2.3.1 |
| I-FR 2.2.11 | Icon Size | C-FR6 | FR 3.3.9 | I-D 2.1.2.3, I-NFR 2.3.11.1 | I-D 2.1.7.4, I-FR 2.2.6, I-FR 2.2.17, I-NFR 2.3.1 |
| I-FR 2.2.12 | Integrating Already Available Technologies | C-FR7 | FR 3.3.10.1, FR 3.3.10.2 | I-FR 2.2.15 | I-FR 2.2.12.1 |
| I-FR 2.2.12.1 | Meaningful Technology Integration | C-FR7 | FR 3.3.10.1, FR 3.3.10.2 | I-FR 2.2.12 |  |
| I-FR 2.2.13 | Displaying Relevent Items Before Other Items | C-FR9 | FR 3.3.11 | I-FR 2.1.1, I-FR 2.2.4 | I-FR 2.2.13, I-FR 2.2.14 |
| I-FR 2.2.14 | Repeating Sentences | C-FR8, CFR9 | FR 3.3.12 | I-FR 2.2.18, I-FR 2.2.13 | I-FR 2.2.17.4, I-FR 2.2.17.3.1 |
| I-FR 2.2.15 | Additional Features | G 3.1.2.1, G 3.1.2.5 | n/a |  | I-FR 2.2.12 |
| I-FR 2.2.16 | Interacting With Icons | C-FR2 | FR 3.3.13 | I-D 2.1.2.2, I-D 2.1.2.3, I-D 2.1.7.2, I-D 2.1.7.3, I-FR 2.2.4, I-NFR 2.3.11.3 | I-NFR 2.3.8 |
| I-FR 2.2.17 | Home Screen Layout | G 3.1.2.1 | FR 3.3.14, FR 3.3.14.1 | I-D 2.1.7.2, I-D 2.1.7.4, I-FR 2.2.4, I-FR 2.2.10, I-FR 2.2.11, I-NFR 2.3.11.1 | I-FR 2.2.17.1, I-FR 2.2.17.2, I-FR 2.2.17.3, I-FR 2.2.17.4, I-FR 2.2.17.5, I-NFR 2.3.1 |
| I-FR 2.2.17.1 | Speak Category | C-FR2 | FR 3.3.14.2 | I-FR 2.2.17 | I-FR 2.2.18 |
| I-FR 2.2.17.2 | Contacts Category | G 3.1.2.1 | FR 3.3.14.3 | I-D 2.1.7.1, I-FR 2.2.17 |  |
| I-FR 2.2.17.3 | Favorites Category | C-FR8 | FR 3.3.14.4 | I-FR 2.2.17 | I-NFR 2.3.5 |
| I-FR 2.2.17.3.1 | Adding Favorites | C-FR8 | FR 3.3.14.4 | I-FR 2.2.17.3, I-FR 2.2.14, I-FR 2.2.17.3.1 |  |
| I-FR 2.2.17.4 | Recents Category | C-FR8 | FR 3.3.14.5 | I-FR 2.2.14, I-FR 2.2.17 | I-FR 2.2.17.4.1 |
| I-FR 2.2.17.4.1 | Recents Contents |  |  | I-FR 2.2.17.4 | I-NFR 2.3.5 |
| I-FR 2.2.17.5 | Me Category | G 3.1.2.1 | FR 3.3.14.6 |  | I-FR 2.2.17.5.1, I-FR 2.2.17.5.2 |
| I-FR 2.2.17.5.1 | Me Contents | G 3.1.2.1 | FR 3.3.14.6 | I-FR 2.2.17.5 | I-NFR 2.3.5, I-FR 2.2.17.5.1.1 |
| I-FR 2.2.17.5.1.1 | "Everything About Me" Category | G 3.1.2.1 | FR 3.3.14.6.1 | I-D 2.1.7.4, I-FR 2.2.17.5.1 | I-FR 2.2.17.5.1.1.1, I-FR 2.2.17.5.1.1.2 |
| I-FR 2.2.17.5.1.1.1 | "Everything About Me" Contents | G 3.1.2.1 | FR 3.3.14.6.1 | I-FR 2.2.17.5.1.1 |  |
| I-FR 2.2.17.5.1.1.2 | "Everything About Me' Target User | G 3.1.2.1 | FR 3.3.14.6.1 | I-FR 2.2.17.5.1.1 | I-FR 2.2.17.5.1.1.3 |
| I-FR 2.2.17.5.1.1.3 | How to Input the Information into the "Everything About Me" Section | G 3.1.2.1 | FR 3.3.14.6.1 | I-FR 2.2.17.5.1.1.2 |  |
| I-FR 2.2.17.5.2 | Me Target User | G 3.1.2.1 | FR 3.3.14.6 | I-D 2.1.5, I-FR 2.2.17.5 | I-FR 2.2.17.5.3 |
| I-FR 2.2.17.5.3 | Me Input Method | G 3.1.2.1 | FR 3.3.14.6 | I-D 2.1.7.4, I-FR 2.2.17.5.2 |  |
| I-FR 2.2.18 | Endpoint Screen Layout | C-FR2 | FR 3.3.15.1, FR 3.3.15.2 | I-D 2.1.7.4, I-FR 2.2.4, I-FR 2.2.7, I-FR 2.2.6, I-FR 2.2.10, I-FR 2.2.17.1, I-FR 2.2.21, I-NFR 2.3.11.1 | I-FR 2.2.14, I-FR 2.2.17.3.1, I-NFR 2.3.1, I-NFR 2.3.3 |
| I-FR 2.2.19 | Communication Blackboard | G 3.1.2.2 | FR 3.3.16 |  |  |
| I-FR 2.2.20 | Assistive Person Command Locations | G 3.1.2.2 | FR 3.3.16, 3.3.14.5 |  |  |
| I-FR 2.2.21 | Sign Language Setting | G 3.1.2.1, G 3.1.2.3, C-FR2 |  | I-FR 2.2.21 | I-FR 2.2.9, I-FR 2.2.18, I-NFR 2.3.1, I-NFR 2.3.3, I-NFR 2.3.11 |
|  |  |  |  |  |  |
| I-NFR | Issues - Non-Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) | Backward Traceability (Within Issues) | Forward Traceability (Within Issues) |
| I-NFR 2.3.1 | Usability | C-NFR1 | NFR 3.4.1 | I-FR 2.2.6, I-FR 2.2.9, I-FR 2.2.10, I-FR 2.2.11, I-FR 2.2.17, I-FR 2.2.18, I-NFR 2.3.4, I-FR 2.2.21 | I-NFR 2.3.2, I-NFR 2.3.5, I-NFR 2.3.11 |
| I-NFR 2.3.2 | Understandability | C-NFR2 | NFR 3.4.2 | I-NFR 2.3.1 |  |
| I-NFR 2.3.3 | Vocabulary | C-NFR3 | NFR 3.4.3 | I-FR 2.2.18, I-FR 2.2.21, I-NFR 2.3.11.2 |  |
| I-NFR 2.3.4 | Navigability | C-NFR4 | NFR 3.4.4 | I-NFR 2.3.6, I-NFR 2.3.11.2 | I-NFR 2.3.1 |
| I-NFR 2.3.5 | Scoping Dynamic and Flexible Sentence Generation | C-NFR6 |  | I-FR 2.2.1, I-FR 2.2.4, I-FR 2.2.7, I-FR 2.2.17.2, I-FR 2.2.17.4.1, I-FR 2.2.17.5.1, I-FR 2.2.18, I-NFR 2.3.1 | I-NFR 2.3.7 |
| I-NFR 2.3.6 | Minimal Clicks | C-NFR5 | NFR 3.4.6 |  | I-FR 2.2.4, I-NFR 2.3.4 |
| I-NFR 2.3.7 | Real World Communication | C-NFR7 | NFR 3.4.5, FR 3.3.5 | I-NFR 2.3.5 |  |
| I-NFR 2.3.8 | Icon to Speak Speed Minimization | C-NFR8 | NFR 3.4.7.2 | I-FR 2.2.16 |  |
| I-NFR 2.3.9 | Fast Emergency Calls | C-NFR8 | NFR 3.4.7.1, NFR 3.4.7.3, NFR 3.4.7.4 | I-FR 2.2.8 | I-NFR 2.2.10 |
| I-NFR 2.3.10 | Accuracy of Emergency Calls | C-NFR8, C-NFR9 | NFR 3.4.8 | I-D 2.2.8.1, I-NFR 2.2.9 |  |
| I-NFR 2.3.11 | Customizability | C-NFR10 | NFR 3.5.11 | I-FR 2.2.9, I-NFR 2.3.1, I-FR 2.2.21, NFR 3.4.9, I-NFR 2.3.11.x | I-NFR 2.3.5 |
| I-NFR 2.3.11.1 | Customize Icon Size | C-NFR10 | NFR 3.5.11.1 | I-NFR 2.3.11 | I-FR 2.2.11, I-FR 2.2.17, I-FR 2.2.18 |
| I-NFR 2.3.11.2 | Customize Icon Label | C-NFR10 | NFR 3.5.11.2 | I-FR 2.2.2, I-NFR 2.3.3, I-NFR 2.3.11 | I-FR 2.2.1, I-FR 2.2.9 |
| I-NFR 2.3.11.3 | Enable/Disable "Hold to Speak" | C-NFR10 | NFR 3.5.11.3 | I-D 2.1.7.3, I-NFR 2.3.4, I-NFR 2.3.11 | I-FR 2.2.9, I-FR 2.2.16 |
| I-NFR 2.3.12 | Extensibility | C-NFR11 | NFR 3.5.12 |  |  |
|  |  |  |  |  |  |
| D | Improved Understanding - Domain | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| D 3.2.1 | Users | I-D 2.1.1 | Pr 4.1.1 |  |  |
| D 3.2.2 | Supported Disabilities | I-D 2.1.2 | Pr 4.1.1, Pr 4.1.2 |  |  |
| D 3.2.3 | Supported Living Conditions | I-D 2.1.3 | n/a |  |  |
| D 3.2.4 | Daily Activities | I-D 2.1.4 | Pr 4.1.2 |  |  |
| D 3.2.5 | Assistive Persons | I-D 2.1.5 | Pr 4.1.1, Pr 4.1.7 |  |  |
| D 3.2.6 | Greetings | I-D 2.1.6 | Pr 4.1.2 |  |  |
| D 3.2.7 | Multi-Dimensional Vocabulary | I-D 2.1.7 | Pr 4.1.3 |  |  |
| D 3.2.8 | Other Activities | I-D 2.1.8 | Pr 4.1.2 |  |  |
| D 3.2.9 | Category Definition | C-D9 | Pr 4.1.2 |  |  |
| D 3.2.10 | Emergency Situations | I-D 2.1.9 | Pr 4.1.6 |  |  |
| D 3.2.11 | Questions | I-D 2.1.14 | n/a |  |  |
|  |  |  |  |  |  |
| FR | Improved Understanding - Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| FR 3.3.1 | Categories | I-FR 2.2.1 | Pr 4.1.2 |  |  |
| FR 3.3.2 | Various Dimensions of Vocabulary | I-FR 2.2.2 | Pr 4.1.1 |  |  |
| FR 3.3.3 | Navigation | I-FR 2.2.4, I-FR 2.2.5 | Pr 4.1.1 |  |  |
| FR 3.3.4 | Icon Navigation | I-FR 2.2.6 | n/a |  |  |
| FR 3.3.5 | Sentence Generation | I-FR 2.2.7, I-NFR 2.3.7 | Pr 4.1.4 |  |  |
| FR 3.3.6.1 | Emergency Calls | I-FR 2.2.8, I-FR 2.2.8.x | Pr 4.1.6 |  |  |
| FR 3.3.6.2 | Emergency Texts | I-FR 2.2.8, I-FR 2.2.8.x | n/a |  |  |
| FR 3.3.7 | Meaning | I-FR 2.2.9 | Pr 4.1.1 |  |  |
| FR 3.3.8 | Color | I-FR 2.2.10 | Pr 4.1.1 |  |  |
| FR 3.3.9 | Icon Size | I-FR 2.2.11 | Pr 4.1.1 |  |  |
| FR 3.3.10.1 | Text to Speech | I-FR 2.2.12, I-FR 2.2.12.1 | n/a |  |  |
| FR 3.3.10.2 | Speech to Text | I-FR 2.2.12, I-FR 2.2.12.1 | n/a |  |  |
| FR 3.3.11 | Displaying Relevant Items Before Other Items | I-FR 2.2.13 | Pr 4.1.3 |  |  |
| FR 3.3.12 | Repeating Sentences | I-FR 2.2.14 | n/a |  |  |
| FR 3.3.13 | Interacting With Icons | I-FR 2.2.16 | Pr 4.1.1 |  |  |
| FR 3.3.14 | Home Screen Layout | I-FR 2.2.17, | Pr 4.1.1 |  |  |
| FR 3.3.14.1 | Day of the Week | I-FR 2.2.17.1 | Pr 4.1.1 |  |  |
| FR 3.3.14.2 | Speak Button | I-FR 2.2.17.1 | Pr 4.1.1 |  |  |
| FR 3.3.14.3 | Contacts Button | I-FR 2.2.17.2 | Pr 4.1.1, Pr 4.1.2 |  |  |
| FR 3.3.14.4 | Favorites Button | I-FR 2.2.17.3, I-FR 2.2.17.3.1 | Pr 4.1.1 |  |  |
| FR 3.3.14.5 | "Recents" button | I-FR 2.2.17.4 | Pr 4.1.1 |  |  |
| FR 3.3.14.6 | "Me" Button | I-FR 2.2.17.5, I-FR 2.2.17.5.x | Pr 4.1.1 |  |  |
| FR 3.3.14.6.1 | "Everything About Me" Button | I-FR 2.2.17.5.1.1, I-FR 2.2.17.5.1.1.x, I-FR 2.2.20 | Pr 4.1.1 |  |  |
| FR 3.3.15.1 | Endpoint Screen Layout | I-FR 2.2.18 | n/a |  |  |
| FR 3.3.15.2 | Endpoint Screen Options | I-FR 2.2.18 | n/a |  |  |
| FR 3.3.16 | Communication Blackboard | I-FR 2.2.19, I-FR 2.2.20 | n/a |  |  |
|  |  |  |  |  |  |
| NFR | Improved Understanding - Non-Functional Requirements | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| NFR 3.4.1 | Usability | I-NFR 2.3.1 | Pr 4.1.1, Pr 4.1.6 |  |  |
| NFR 3.4.2 | Understandability | I-NFR 2.3.2 | Pr 4.1.1, Pr 4.1.6 |  |  |
| NFR 3.4.3 | Clarity | I-NFR 2.3.3 | Pr 4.1.1 |  |  |
| NFR 3.4.4 | Navigation | I-NFR 2.3.4 | n/a |  |  |
| NFR 3.4.5 | Sentence Generation | I-FR 2.2.7, I-NFR 2.3.7 | Pr 4.1.4 |  |  |
| NFR 3.4.6 | Number of Clicks | I-NFR 2.3.6 | Pr 4.1.4 |  |  |
| NFR 3.4.7.1 | Performance - Input Lag | I-NFR 2.3.9 | n/a |  |  |
| NFR 3.4.7.2 | Performance - System Speech Lag | I-NFR 2.3.8 | n/a |  |  |
| NFR 3.4.7.3 | Performance - Emergency Button Presses | I-NFR 2.3.9 | n/a |  |  |
| NFR 3.4.7.4 | Performance - Emergency Message Rate of Speech | I-NFR 2.3.9 | n/a |  |  |
| NFR 3.4.8 | Emergency Call Accuracy | I-NFR 2.3.10 | Pr 4.1.6 |  |  |
| NFR 3.4.9 | Customizability | I-NFR 2.3.11 | NFR 3.4.9.x |  |  |
| NFR 3.4.9.1 | Resize Icons | I-NFR 2.3.11.1, NFR 3.4.9 | Pr 4.1.x |  |  |
| NFR 3.4.9.2 | Relabel Icons | I-NFR 2.3.11.2, NFR 3.4.9 | Pr 4.1.x |  |  |
| NFR 3.4.9.3 | "Hold to Speak" | I-NFR 2.3.11.3, NFR 3.4.9 | Pr 4.1.x |  |  |
| NFR 3.4.10 | Extensibility | I-NFR 2.3.12 | n/a |  |  |
|  |  |  |  |  |  |
| Pr | Prototype | Backward Traceability (Cross-Document) | Forward Traceability (Cross-Document) |  |  |
| Pr 4.1.1 | Home Screen | D 3.2.1, D 3.2.2, D 3.2.5, D 3.2.7, FR 3.3.2, FR 3.3.3, FR 3.3.7, FR 3.3.8, FR 3.3.9, FR 3.3.13, FR 3.3.14, FR 3.3.14.1, FR 3.3.14.2, FR 3.3.14.3, FR 3.3.14.4, FR 3.3.14.6.1, FR 3.3.14.6, FR 3.3.14.5, NFR 3.4.1, NFR 3.4.2, NFR 3.4.3, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.2 | Speak | D 3.2.2, D 3.2.4, D 3.2.6, D 3.2.8, D 3.2.9, FR 3.3.1, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.3 | Hygiene | D 3.2.4, D 3.2.7, FR 3.3.11, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.4 | Bath | D 3.2.4, D 3.2.5, FR 3.3.5, NFR 3.4.5, NFR 3.4.6, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.5 | Contacts | FR 3.3.14.3, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.6 | Emergency | D 3.2.10, FR 3.3.6.1, NFR 3.4.2, NFR 3.4.8, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |
| Pr 4.1.7 | Everything About Me | D 3.2.5, D 3.2.10, FR 3.3.14.6.1, NFR 3.4.9, NFR 3.4.9.1, NFR 3.4.9.2, NFR 3.4.9.3 | n/a |  |  |