**PRODUCT REQUIREMENTS DOCUMENT**

**(HARDWARE & PLATFORM) V.0.1**

Product: ANDA WATCH

Product line: ELDERLY WATCH

Scope: HARWARE, FIRMWARE & PLATFORM

Date: July 12, 2018

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Content:

The following PRD contains **only hardware and** **platform requirements for the product. Product requirements for software features, mechanical design, ID and others are not part of this document.**

**Hardware requirements** will cover every part or block that conforms the product’s embedded system.

**Firmware and platform requirements** will cover OS details, software build requirements and low-level interfaces among any other type of platform customizations and optimizations. Platform customizations and optimizations can also include continuous support in tasks related to power management, system performance, system configurations, telephony management and carrier customizations.

PRODUCT’S EMBEDDED SYSTEM

**BLOCK DIAGRAM**

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PRODUCT’S EMBEDDED SYSTEM

**HARDWARE REQUIREMENTS**

|  |  |  |  |
| --- | --- | --- | --- |
| **BLOCK** | **BLOCK DESCRIPTION** | **CHARACTERISTICS** | **SPECIFICATIONS** |
| 1 | CPU | TYPE | MSM8909W - ARM Cortex A7 1.2 GHz 4 Core Qualcomm ® Adreno™ 304 GPU |
| 2 | MEMORY & STORAGE | TECHNOLOGY | EMBEDDED |
| CAPACITY | RAM 512MB + ROM 4GB |
| 3 | SCREEN | TECHNOLOGY | AMOLED |
| TYPE | ROUND. GORILLA GLASS 3 MINIMUM |
| DIMENSIONS | 1.39" DIAMETER |
| SIZE | 400x400px |
| 4 | TOUCH PANEL | TECHNOLOGY | CAPACITIVE |
| TYPE | MULTI-TOUCH |
| 5 | INERTIAL SENSORS | TYPE | MODULE (ACC, GYRO, COMPASS) |
| ADDITIONALS | FREE FALL DETECTION |
| SIGNIFICANT MOTION |
| STEP COUNTER |
| EVENTS DETECTION |
| INTERFACE TO ACCESS TO SENSOR DETAILS AND SENSOR PARAMETER CONFIGURATIONS IN HIGH LEVEL IS NEEDED |
| COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |
| 6 | HEALTH MONITORING SENSORS | TYPE 1 | MODULE - PREFERRED (PPG, ECG, BLOOD PRESSURE). OTHERWISE, INDIVIDUAL |
| TYPE 2 | SLEEP MONITOR (FOR SLEEP QUALITY) |
| ADDITIONALS | INTERFACE TO ACCESS TO SENSOR DETAILS AND SENSOR PARAMETER CONFIGURATIONS IN HIGH LEVEL IS NEEDED |
| COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |

PRODUCT’S EMBEDDED SYSTEM

**HARDWARE REQUIREMENTS**

|  |  |  |  |
| --- | --- | --- | --- |
| 7 | POWER MANAGEMENT | TECHNOLOGY | EMBEDDED |
| TYPE | NO SPECIFIED |
| 8 | POWER SUPPLY | TECHNOLOGY | USB 5V |
| TYPE | POGO PIN CONNECTOR PREFERRED, OTHERWISE MICRO USB CONNECTOR. |
| ADDITIONALS | ATTACHMENT/DETACHMENT FORCE MUST BE STRONG. MEASUREMENTS TO BE PROVIDED BY ANDA. |
| 9 | BATTERY | TECHNOLOGY | USB 5V |
| TYPE | POGO PIN CONNECTOR PREFERRED, OTHERWISE MICRO USB CONNECTOR. |
| 10 | CODEC (AUDIO) | TECHNOLOGY | EMBEDDED |
| ADDITIONALS | ALLOW BIDIRECTIONAL COMMUNICATION WITHOUT ECHO INTERFERENCE BETWEEN MIC AND SPEAKER |
| 11 | MIC | TECHNOLOGY | NO SPECIFIED |
| ADDITIONALS | HIGH FIDELITY INPUT AND POSSIBILITY TO INCREASE GAIN WHEN NEEDED. MEASUREMENTS TO BE PROVIDED BY ANDA. |
| 12 | SPEAKER | TECHNOLOGY | NO SPECIFIED |
| ADDITIONALS | HIGH FIDELITY OUTPUT AND POWER. MEASUREMENTS TO BE PROVIDED BY ANDA. |
| 13 | BLUETOOTH | TECHNOLOGY | 4.1 BLE |
| ADDITIONALS | INTEGRATED AUDIO CODEC FOR HIGH FIDELITY AUDIO TRANSMISSIONS |
| POSSIBILITY TO PAIR WITH ANOTHER SIMILAR DEVICE, ANDROID AND IOS |
| 14 | WIFI | TECHNOLOGY | 802.11 B/G/N |
| TYPE | AT LEAST ONE TYPE: 2.4GHZ OR 5.1 GHZ. 2.4GHZ PREFERRED |
| 15 | VIBRATOR | COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |

PRODUCT’S EMBEDDED SYSTEM

**HARDWARE REQUIREMENTS**

|  |  |  |  |
| --- | --- | --- | --- |
| 16 | KEY: POWER BUTTON | COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |
| ADDITIONALS | INTERFACE TO ACCESS TO KEY EVENTS IN HIGH LEVEL IS NEEDED |
| ENABLE THE POSSIBILITY TO INTERCEPT BUTTON EVENTS FOR DIFFERENT PURPOSES |
| 17 | KEY: MULTIPURPOSE BUTTON | COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |
| ADDITIONALS | INTERFACE TO ACCESS TO KEY EVENTS IN HIGH LEVEL IS NEEDED |
| ENABLE THE POSSIBILITY TO INTERCEPT BUTTON EVENTS FOR DIFFERENT PURPOSES |
| 18 | SIM CARD | TYPE | NANO (4FF) |
| SIM SOCKET TYPE | COMPONENT TO BE SELECTED WITH ANDA |
| ADDITIONALS | ENABLE HOT PLUG |
| ALLOW TO ENABLE/DISABLE SIM LOCK FROM HARDWARE AND PROVIDE TOOL |
| 19 | POWER TRACKER | TYPE | ENVELOPE TRACKING PREFERRED |
| 20 | TRANSCEIVER | TECHNOLOGY | 2G, 3G, 4G LTE |
| TRANSCEIVER FOR THE AMERICAS | 2G GSM BANDS | 850, 1900 |
| CDMA | B0, B1 |
| UMTS | 1, 2, 3, 4, 5 |
| 4G BANDS | MANDATORY: BANDS 2 AND 4 (FDD) |
| 4G BANDS | DESIRED IN ORDER OF PREFERENCE: BAND 28, 3, 7 (FDD) |
| TRANSCEIVER FOR EUROPE | 2G GSM BANDS | 900, 1800 |
| UMTS | 1, 2, 3, 4, 5 |
| 4G BANDS | MANDATORY: BAND 20 (FDD) |
| 4G BANDS | DESIRED IN ORDER OF PREFERENCE: BAND 7, 3 (FDD) |
| TRANSCEIVER FOR CHINA | 2G GSM BANDS | 900, 1800 |
| UMTS | 1, 2, 3, 4, 5 |
| 4G BANDS | MANDATORY: BAND 41 (TDD) |
| 21 | GPS | TYPE | GPS, GLONASS \ GALILEO, BEIDOU |
| ACCURACY | TO BE PROVIDED BY ANDA |

PRODUCT’S EMBEDDED SYSTEM

**FIRMWARE AND PLATFORM REQUIREMENTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ITEM** | **RELATED TO BLOCK Nº** | **ITEM DESCRIPTION** | **CHARACTERISTICS** | **SPECIFICATIONS** |
| 1 | 1 | OS | TYPE | ANDROID 7+ |
| 2 | 3, 4 | SCREEN EVENTS | WAKE UP | ENABLE: TILT TO WAKE UP |
| ENABLE: TOUCH TO WAKE UP |
| SLEEP | ENABLE: PALM ON SCREEN TO SLEEP |
| ENABLE: TILT TO SLEEP |
| 3 | 5 | INERTIAL SENSOR EVENTS | CAPTURE AND BROADCAST EVENTS | FREE FALL DETECTION |
| SIGNIFICANT MOTION |
| STEP COUNTER |
| OTHERS |
| ALLOW ACCESS TO COMPONENT DATA AT HIGH LEVEL | ENABLE: BRIDGE TO ACCESS AND CONFIGURE COMPONENT PARAMETERS (SUCH AS EVENT THRESHOLDS) DIRECTLY FROM ANDROID. |
| 4 | 6 | HEALTH MONITORING EVENTS | CAPTURE AND BROADCAST EVENTS | PPG |
| ECG |
| BLOOD PRESSURE |
| OTHERS |
| ALLOW ACCESS TO COMPONENT DATA AT HIGH LEVEL | ENABLE: BRIDGE TO ACCESS AND CONFIGURE COMPONENT PARAMETERS (SUCH AS EVENT THRESHOLDS) DIRECTLY FROM ANDROID. |
| 5 | 10 | CODECS | AUDIO | ENABLE: HIGH QUALITY AUDIO REPRODUCTION |
| VIDEO | ENABLE: VIDEO REPRODUCTION |
| 6 | 11 | MIC | TECHNOLOGY | NO SPECIFIED |
| ADDITIONALS | HIGH FIDELITY INPUT AND POSSIBILITY TO INCREASE GAIN WHEN NEEDED. MEASUREMENTS TO BE PROVIDED BY ANDA. |

PRODUCT’S EMBEDDED SYSTEM

**FIRMWARE AND PLATFORM REQUIREMENTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 7 | 12 | SPEAKER | TECHNOLOGY | NO SPECIFIED |
| ADDITIONALS | HIGH FIDELITY OUTPUT AND POWER. MEASUREMENTS TO BE PROVIDED BY ANDA. |
| 8 | 13 | BLUETOOTH | TECHNOLOGY | 4.1 BLE |
| ADDITIONALS | INTEGRATED AUDIO CODEC FOR HIGH FIDELITY AUDIO TRANSMISSIONS |
| POSSIBILITY TO PAIR WITH ANOTHER SIMILAR DEVICE, ANDROID AND IOS |
| 9 | 14 | WIFI | TECHNOLOGY | 802.11 B/G/N |
| TYPE | AT LEAST ONE TYPE: 2.4GHZ OR 5.1 GHZ. 2.4GHZ PREFERRED |
| 10 | 15 | VIBRATOR | COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |
| 11 | 16 | KEY: POWER BUTTON | COMMENTS | COMPONENT TO BE SELECTED WITH ANDA |
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| 13 | 18 | SIM CARD | TYPE | NANO (4FF) |
| SIM SOCKET TYPE | COMPONENT TO BE SELECTED WITH ANDA |
| ADDITIONALS | ENABLE HOT PLUG |
| ALLOW TO ENABLE/DISABLE SIM LOCK FROM HARDWARE AND PROVIDE TOOL |
| 14 | 21 | GPS | TYPE | GPS, GLONASS \ GALILEO, BEIDOU |
| ADDITIONALS | ENABLE A-GPS |
| ENABLE: LBS, IZAT |
| 15 | - | PHONE CALLS | TYPE | VOICE CALLS SUPPORT |
| ADDITIONALS | ENABLE: VOLTE |
| 16 | - | CELLULAR, RF AND NETWORK | TYPE | CARRIER CUSTOMIZATIONS |
| DETAIL | CHECK CARRIER CUSTOMIZATION AND NETWORK PARAMETER DETAILS |

PRODUCT’S EMBEDDED SYSTEM

**TESTS AND CERTIFICATIONS**

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| 1 | - | TESTS AND CERTIFICATIONS | TESTS | ENDURANCE, DESTRUCTIVE TEST |
| NON-ALLERGY. MEDICAL GRADE |
| RF TUNNING |
| BATTERY SECURITY REPORT |
| CERTIFICATES OR PROVING MATERIALS | IP67 (or superior) COMPLIANCE |
| GORILLA GLASS 3 COMPLIANCE |
| BATTERY TRANSPORTATION CERT: UN38.3 |
| FCC |
| PTCRB (Test) |
| UL (for charger adapter) |
| CE (for europe) |
| GSM TAC |
| WIFI Alliance (opc) |
| Bluetooth SEC (opc) |