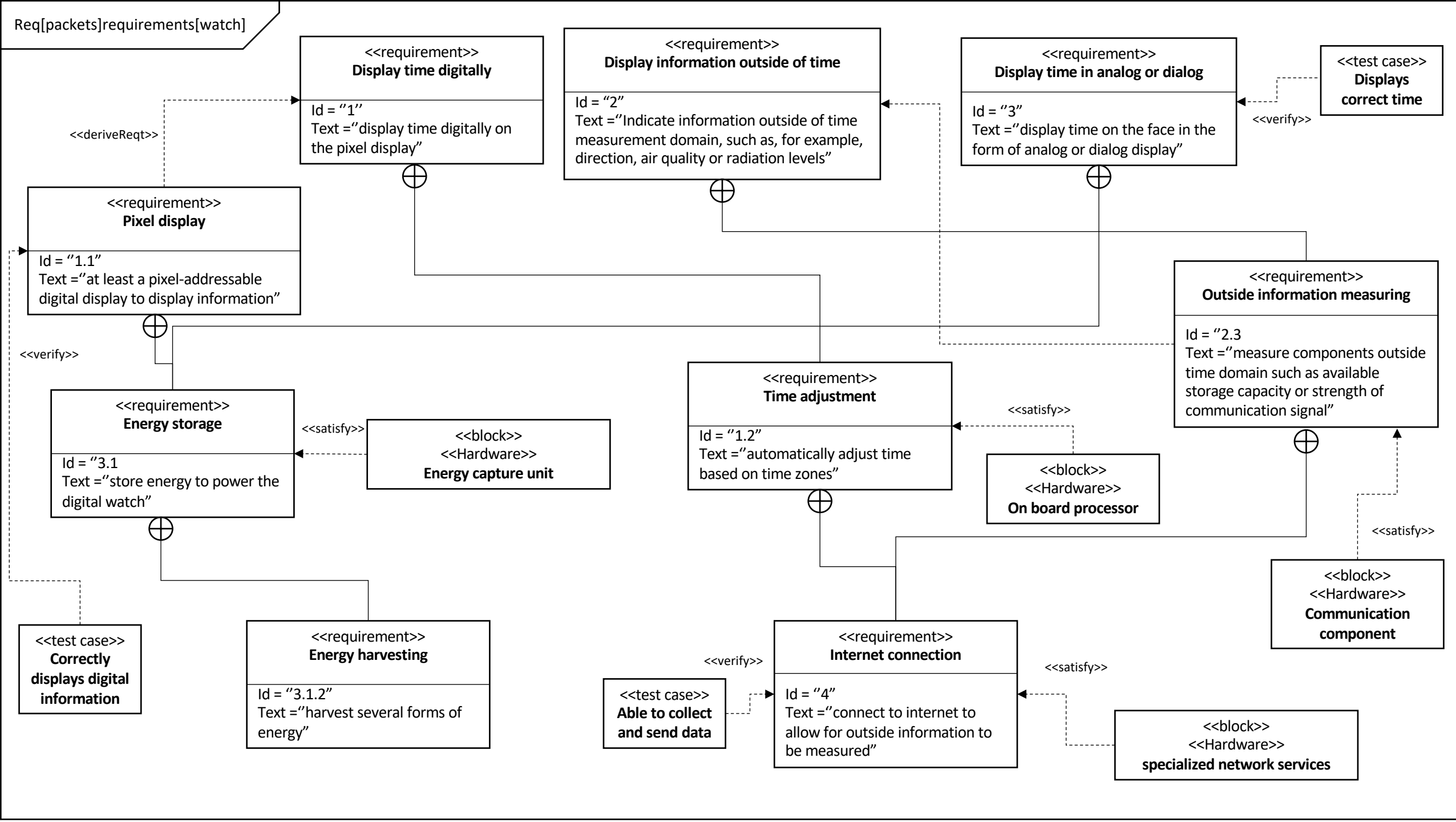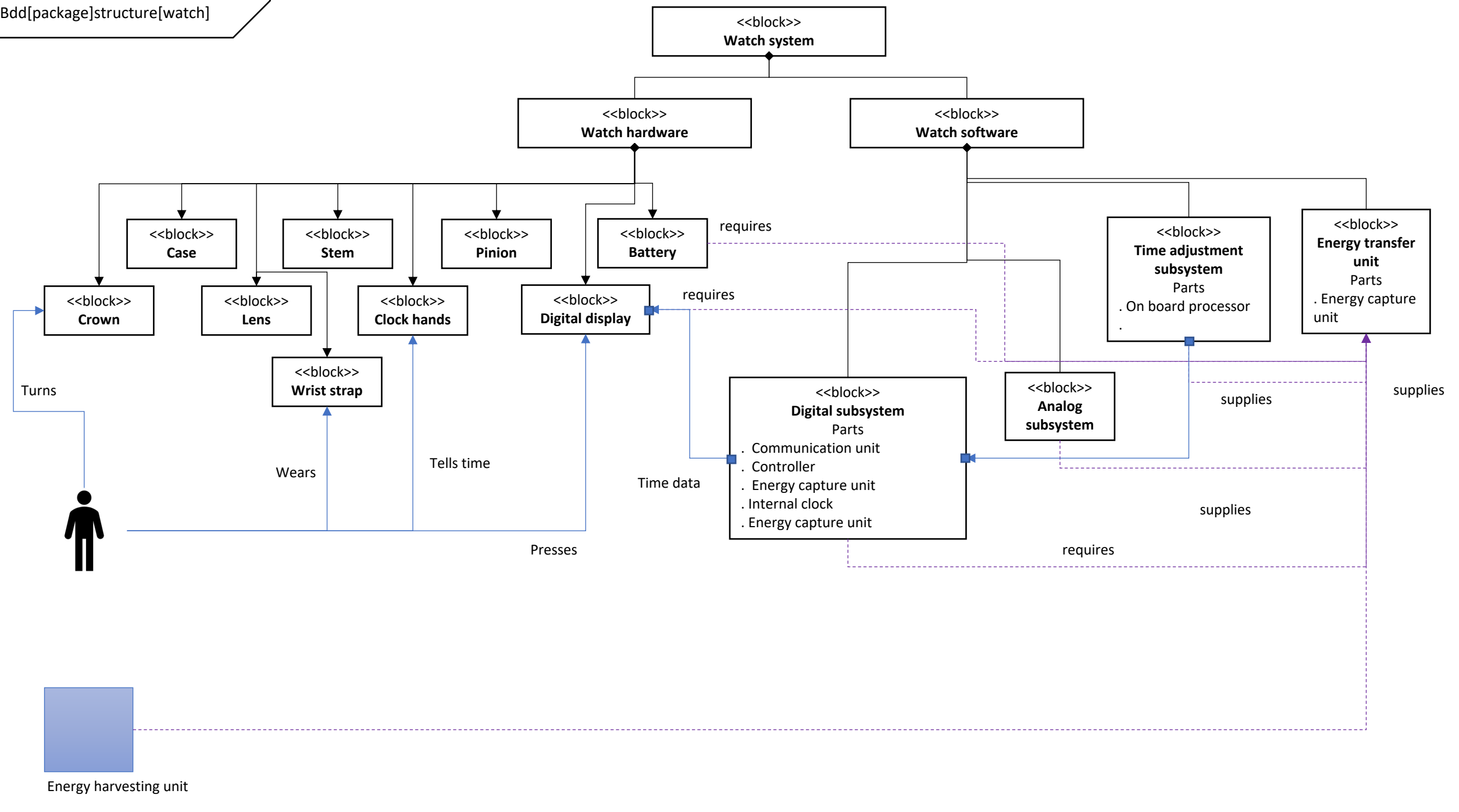Name: James Bird
Username: JXB1330
ID: 2212304

For the requirement diagram I initially identified and listed all the requirements from the patent and created my first initial iteration with the two main requirements being display the time and display information outside time. In my second iteration I added descriptions to the requirement blocks to identify new requirements and to see the relationships between the blocks. Next, I identified what type of relationships my requirements have and decided upon creating a derived requirement relationship, I then wrote down some of the ways my requirements can be satisfied to add onto my final iteration.

The requirement diagram three main requirements are display time digitally, display time in either analog or dialog and display information outside of the time domain. I decided that the requirement to store power is a derived requirement from supplying the power and can be satisfied be the internal energy capture unit.

For the Block Definition diagram, I firstly Identified and listed all the blocks of the watch and created a small diagram describing the hardware and software of the diagram making sure they satisfy my requirement diagram satisfy blocks. In my second iteration of my diagram, I better described the relationship between the hardware and software components by adding requirements and supply lines between them. I then added an actor to describe how the user would interact with the hardware of the watch

I started my activity diagram by making a small diagram derived from my requirement diagram and iterated upon the blocks, adding new activities needed to satisfy the other blocks completely. In my next Iteration I included the parameters for data. I then added the control flows and decision nodes to describe how the sequence of activities within the watch are to output the times.

Req[packets]requirements[watch]

<<requirement>>
Display time digitally

Id = "1"
Text ="display time digitally on
the pixel display"

<<requirement>>
Display information outside of time

Id = "2"
Text ="Indicate information outside of time
measurement domain, such as, for example,
direction, air quality or radiation levels"

<<requirement>>
Display time in analog or dialog

Id = "3"
Text ="display time on the face in the
form of analog or dialog display"

<<test case>>
**Displays
correct time**

<<deriveReqt>>

<<verify>>

<<requirement>>
Pixel display

Id = "1.1"
Text ="at least a pixel-addressable
digital display to display information"

<<requirement>>
Outside information measuring

Id = "2.3
Text ="measure components outside
time domain such as available
storage capacity or strength of
communication signal"

<<verify>>

<<requirement>>
Energy storage

Id = 3.1
Text ="store energy to power the
digital watch"

<<satisfy>>

<<block>>
<<Hardware>>
Energy capture unit

<<requirement>>
Time adjustment

Id = "1.2"
Text ="automatically adjust time
based on time zones"

<<satisfy>>

<<block>>
<<Hardware>>
On board processor

<<satisfy>>

<<block>>
<<Hardware>>
**Communication
component**

<<test case>>
**Correctly
displays digital
information**

<<requirement>>
Energy harvesting

Id = "3.1.2"
Text ="harvest several forms of
energy"

<<verify>>

<<requirement>>
Internet connection

Id = "4"
Text ="connect to internet to
allow for outside information to
be measured"

<<satisfy>>

<<test case>>
**Able to collect
and send data**

<<block>>
<<Hardware>>
specialized network services

Bdd[package]structure[watch]

<<block>>
Watch system

<<block>>
Watch hardware

<<block>>
Watch software

<<block>>
Case

<<block>>
Stem

<<block>>
Pinion

<<block>>
Battery

requires

<<block>>
Crown

<<block>>
Lens

<<block>>
Clock hands

<<block>>
Digital display

requires

<<block>>
Time adjustment subsystem
Parts
. On board processor
.

<<block>>
Energy transfer unit
Parts
. Energy capture unit

<<block>>
Wrist strap

Turns

Wears

Tells time

Presses

<<block>>
Digital subsystem
Parts
. Communication unit
. Controller
. Energy capture unit
. Internal clock
. Energy capture unit

<<block>>
Analog subsystem

Time data

supplies

supplies

requires

supplies

Energy harvesting unit

Ace display dialog time

- → dialog time output

dialog time output

internal clock

user inputs time <<data>>

motion sensor

external sensors <<data>>
internal sensors <<data>>

Closed case

Opened case

internal timer

Digital display

User chooses option <<data>>

Controller unit

tactile feedback

Close selection

condition not met

condition met

data storage unit allows connection

Processor received request

User input/ output <<data>>

Output data <<data>>

transmission

Memory