APPENDIX E – EXPERIMENT INSTRUMENTATION

E.1 Background Form

1. Name:
2. Academic Degree
   a) Graduate
   b) Master Student
   c) Master
   d) Doctoral Student
   e) Doctor
3. Which is your experience on Software Testing?
   a) Know what is Software Testing and had already tested software in academy and industry
   b) Know what is Software Testing and had already tested software in academy
   c) Does not have previously knowledge on Software Testing
4. Which is your experience on Model Checking?
   a) Know what is Model Checking and had already used a checker tool
   b) Know what is Model Checking, but had never used a checker tool
   c) Does not have previously knowledge on Model Checking
5. Which is your experience on DSPL?
   a) Know what is DSPL, its related concepts and had already worked with it on academic or industry projects
   b) Know what is DSPL, its related concepts, but had never worked with it
   c) Does not have previously knowledge on DSPL
6. Which is your experience with Java Language?
   a) Have already used Java in industry and academic projects
   b) Have already used Java, but only in academic projects
   c) Does not have previously knowledge on Java
7. Which is your experience with Android?
   a) Have already used Android in industry and academic projects
   b) Have already used Android, but only in academic projects
   c) Does not have previously knowledge on Android

E.2 Task I - Mobiline

The Mobiline DSPL (Figure 38) is a product line of mobile applications that shows to the visitor information about the place s/he is visiting. It has the following features:

1. **Files**
   a) Text: A functionally that provides text content to the user
   b) Video: A functionally that provides video content to the user
   c) Image: A functionally that provides image content to the user
2. **Show Events**
   a) The products of the Mobile Guide can show events to the visitors. This function can be related to “all events” or “current events”.

Moreover, the Mobiline DSPL uses a set of context information to reconfigure by generating a product at runtime that follows the feature model rules. Regarding the contexts observed, they are described with their context features as follows:

1. **Battery Charge level**: identifies if the battery charge is Full (BtFull), Normal (BtNormal) or Low (BtLow). Usually, the visitor receives a device with full battery and the charge is decreasing over time.
   a) BtFull
   b) BtNormal
   c) BtLow
2. **Network Status**: identifies whether the network is slow or not. This can happen anytime.
   a) Slow Network

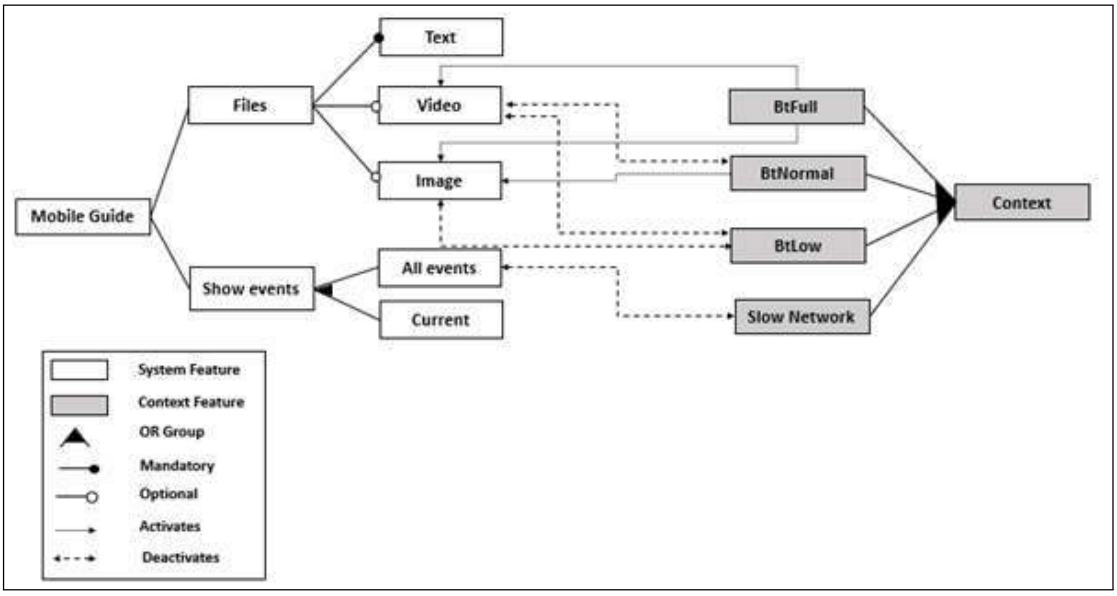
Now, you need to play the tester role. Please specify a **Test Sequence** of adaptation test cases, i.e., test cases related to the adaptive behavior. Notice that mandatory features do not change their status (i.e., they are always activated).

E.3 Task II - Smart Home

The Smart Home DSPL (Figure 39) is a dynamic product line to facilitate the daily lives of people. Some functionality of this DSPL are presented as follows:

1. **Security**
   a) Call the Police: The security system may call the police
   b) Presence Illusion: The system can have a functionality to simulate presence in the

Figure 38 – Feature Model of the Mobile Visit Guide for the experiment task



Source – the author

house;

c) Alarm: The security system can have an alarm functionality

2. **Temperature**

a) The temperature is controlled either by air conditioning or the windows opening.

The Smart Home DSPL also uses a set of context information to reconfigure by generating a product at runtime that follows the feature model rules. Regarding the contexts observed, they are described with their context features as follows:

1. **Robbery**: identifies whether exists a threat or (exclusive) an attempt of robbery

a) Threat

b) Attempt

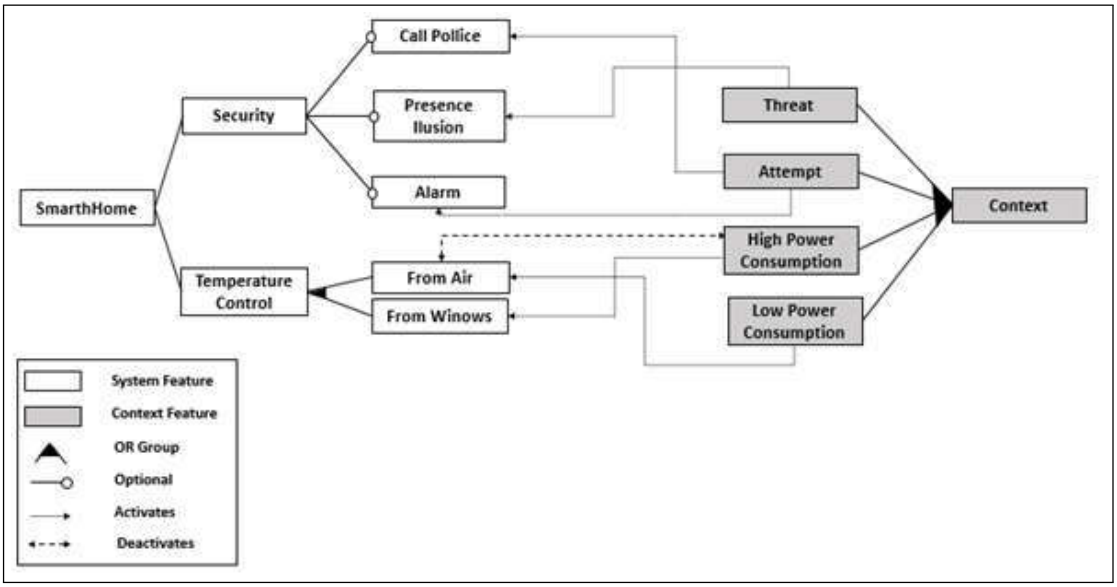
2. **Power Consumption**: identifies whether the house has low power consumption or (exclusive) high power consumption. One of these contexts are always true

a) High Power Consumption

b) Low Power Consumption

Now, you need to play the tester role. Please specify a **Test Sequence** of adaptation test cases, i.e., test cases related to the adaptive behavior. Notice that mandatory features do not change their status (i.e., they are always activated).

Figure 39 – Feature Model of the Smart Home for the experiment task



Source – the author

E.4 Pós-Task Form

1. Name:
2. The training was enough to perform the task.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
3. The task goals were clear to me.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
4. I had enough time to perform the task.
   a) Strongly Disagree
   b) Disagree
   c) Neutral

   d) Agree
   e) Strongly Agree
5. The task was easy.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
6. For me, the coverage of the test cases created is enough.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
7. Describe the approach used to create the test cases (i.e, the test coverage criteria used)
8. Do you have any comments about the task?

E.5 Pós-Experiment Form

1. Name:
2. The coverage of the tests generated by TestDAS is higher than the coverage of the tests created manually based on the tester's experience.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
3. The number of tests generated by TestDAS is higher than the number of tests created manually based on the tester's experience.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree

e) Strongly Agree

4. The time spent to generate the testes with TestDAS is less than the time spent to create tests manually based on the tester's experience.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
5. The proposed test coverage criteria help in the generation of adaptation test cases.
   a) Strongly Disagree
   b) Disagree
   c) Neutral
   d) Agree
   e) Strongly Agree
6. Which is the best way to specify adaptation test cases?
   a) Using the TestDAS and the proposed test criteria
   b) Based on the tester experience
7. Do you have any comments about the TestDAS, training or/and tasks?