

## 1. Research Objective

This survey evaluates our research approach. Our research aims to build a re-engineering approach to support the transformation of a product family into a systematic reuse approach, most likely the Software Product Line (SPL). To transform existing products and build a systematic reuse-based approach, an FM must be derived as an initial step. For this reason, our approach (1) obtains a systematic domain abstraction for the commonality and variability information of existing products in a variability model (i.e., an FM), and (2) maps the commonality and variability information (features) to the code. At the same time, our approach (3) evolves a product family with a new product; moreover, it derives a product from a product family using the specifications of a product.

## 2. Target Population

Developers that work in the Classical Sensor Variants Family software development team at Bosch Company in Portugal.

## 3. Sampling Design

The researchers gave the evaluation to the Classical Sensor Variants Family software development department, and they asked them to answer a questionnaire and to attend a personal meeting.

## 4. The Questionnaire

Please answer the questions as completely and honestly as possible. Try to answer every question. If you are not sure about the answer, just select the one you feel is the most likely. Thank you so much for your support.

### A. Background Information

1.	What is your major field of study?				
2.	How much experience do you have in your work?				
a)	Little experience	b)	Medium experience	c) Significant experience	d) Professional experience
3.	How motivated are you to perform well in this experience?				
a)	Highly unmotivated	b)	Unmotivated	c) Motivated	d) Highly motivated
4.	What is your position in the department?				

### B. The Experiment

You take on the role of a software developer who investigates a set of products from the Classical Sensor for commonality and variability. Please use the output documents of our approach to perform the experiment.

1. The current FM.
2. Traceability Matrix.
3. Variant specification for a new product.

Please perform the experiment three times at least and answer the following questions:

Write down the start time here (e.g., 13:30) -----

Write down the start time here (e.g., 14:30) -----

1.	Is it possible to have counterclockwise and clockwise options for the rotation sense feature at the same time in the product implementation?			
a)	Yes	b)	No	c) I don't Know
2.	Product 154 uses algorithm 1 to indicate a checksum for the CHK_SUM feature. Do you agree with this statement?			
a)	Yes	b)	No	c) I don't Know
3.	To calibrate the steering angle sensor, Product 154 uses the command code word with the value(s):			
a)	CCWB2	b)	CCW23	c) Both of them at the same time d) I don't Know
4.	Beyond evolving the family with a new Features, please list down the new Features:			
5.	Write down the routine name to activate the functionality of the feature LWS_Identification in a product:			
6.	Write down the routine name to update the code of the new product with the required implementation of the new feature LWS_SPD_VD:			
7.	To evolve the family with a new product. Is it required to include the feature in its code implementation?			
a)	Yes	d)	No	e) I don't Know
8.	The available set of products has a high degree of commonality.			
a)	Disagree	b)	Agree	c) Strongly agree d) I don't know

### C. Developers Feedback

To what degree do you agree with the following statements?

1.	Using the current FM and traceability tree could reduce the systematic reuse transformation effort.			
a)	Strongly Disagree	b)	Disagree	c) Agree d) Strongly agree
2.	Using the current FM and traceability tree could increase the degree of reuse achieved in the systematic reuse transformation.			
a)	Strongly Disagree	b)	Disagree	c) Agree d) Strongly agree

3.	In the event that systematic transformation and reuse are not attempted, our approach could reduce the effort for further and future parallel maintenance of a product family.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
4.	Using the current FM and the traceability tree could reduce the effort of evolving the product family with a new product.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
5.	Using the current FM increases the understandability of a product's family domain.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
6.	Using the traceability tree allows the developer to find the implemented features within a code with a higher degree of correctness		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
7.	Using the current FM, clearly, I can determine the common functionalities among a products family.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
8.	I think the output of the research approach provides good support for solving the tasks correctly.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
9.	I could easily see the variability between the products of a family and relate them to their implementation in the code.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
10.	I recommended the approach be used for systematic reuse, almost possibly in the software product line.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		

#### D. Comparison to Baseline Approach

1.	Using the research approach could reduce the systematic reuse transformation effort over the baseline approach.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
2.	Using the current FM and the traceability tree could increase the degree of reuse achieved in the systematic reuse transformation over the baseline approach.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
3.	In case the systematic transformation reuse is not attempted, our approach could reduce the effort for further and future parallel maintenance of a products family over the baseline approach.		
a)	Strongly Disagree	b) Disagree	c) Agree
d)	Strongly agree		
4.	Using the current FM and the traceability tree could reduce the effort of evolving the products family with a new product over the baseline approach.		

a)	Strongly Disagree	b)	Disagree	c)	Agree	d)	Strongly agree
5.	Using the current FM increases the understandability of a products family domain over the baseline approach.						
a)	Strongly Disagree	b)	Disagree	c)	Agree	d)	Strongly agree
6.	Using the traceability tree allows the developer to find the implemented features within the code with a higher degree of correctness over the baseline approach.						
a)	Strongly Disagree	b)	Disagree	c)	Agree	d)	Strongly agree
7.	Using the current FM, clearly, I can determine the common functionalities among a products family over the baseline approach.						
a)	Strongly Disagree	b)	Disagree	c)	Agree	d)	Strongly agree
8.	I could easily see the variability among the products of a family and relate them to their implementation in the code over the baseline approach.						
a)	Strongly Disagree	b)	Disagree	c)	Agree	d)	Strongly agree

Thank you for participating in the experiment!