THESIS REVIEWER'S REPORT

I. IDENTIFICATION DATA

Thesis title:	**Accident avoidance of vehicles using multiple sensors**
Author's name:	**Smit Jagdishkumar Patel**
Type of thesis :	bachelor
Faculty/Institute:	Faculty of Mechanical Engineering (FME)
Department:	Dep. Of instrumentation and control engineering
Thesis reviewer:	Ing. Zdeněk Novák, Ph.D.
Reviewer's department:	Dep. Of instrumentation and control engineering

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	**ordinarily challenging**
How demanding was the assigned project?	

The thesis assignment has both professional and practical benefits.

Fulfilment of assignment	**fulfilled with major objections**
How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.	

The thesis does not include the assignment of the final thesis (in electronic version). I can consider points 1 and 3 fulfilled. Point 2 is almost missing and is insufficiently described in the thesis.

Methodology	**correct**
Comment on the correctness of the approach and/or the solution methods.	

In three chapters, the student introduced us to the modules and sensors needed to build the chosen project. In the chosen procedure I would combine these chapters. A lot of information about individual sensors could have been put in the form of an appendix at the end of the thesis, unnecessarily listing technical data from datasheets at the expense of describing the sensor functionality. The solution of the thesis and the results are in four chapters.

Technical level	**D - satisfactory.**
Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?	

The student managed to build a working prototype of a system using sensors for vehicle accident prevention. The expertise of the assignment is high, but still the thesis lacks a more detailed description of the problems solved. Only at the end of the thesis there is a short description about the development of the program - this part should have been included in the text of the thesis (e.g. in Chapter 7). This is also the case for the remaining chapters, except for Chapter 5.

Formal and language level, scope of thesis	**C - good.**
Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?	

Language proficiency is good with a minimum of typos. Some of the formatting of the text would need to be standardized before submission, e.g. the commonly occurring concatenation of two symbols :-

Selection of sources, citation correctness	**C - good.**
Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?	

The student used a total of 19 citations from publications and journals. He incomprehensibly cited figures using Roman numerals, here I would refer to the IEEE standard on citation for use in future projects and publications.

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Additional commentary and evaluation (optional)
Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The expertise of the work is reduced by the textual equipment of the author. The student spent a lot of time with the project, as described in the conclusion. Some chapters have sparse or even no description of the issues.

I have the following questions about the work:

1. Sensor evaluation algorithms are not presented in the thesis.
   What will be the response of the system to the driver falling asleep (eye blink sensor)?
   What will be the response of the system to an approaching object (ultrasonic sensor)?
   What will be the response of the system to smoke detection (smoke sensor)?
   Indicate these responses of the system to the safety of both the occupants of the vehicle and other road users.

2. Does the system allow user disconnection of some sensors in case of a violent bypass? e.g. a drunk person deliberately disconnects the alcohol sensor in order to drive the vehicle away.

3. Provide an example of a MEMS accelerometer sensor in operation along with an evaluation of the system.

The grade that I award for the thesis is **D - satisfactory.**

Date: **25.8.2021**   Signature: