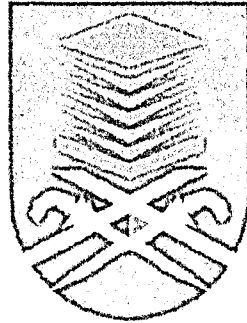


GUI IMPLEMENTATION OF POLYMERIC FOAMS TESTING USING MATLAB®



MOHD HAMID BASIR
98713305

ZAILAN DAUD
98713337

BACHELOR OF MECHANICAL ENGINEERING
FACULTY OF MECHANICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM

NOVEMBER 2000

ACKNOWLEDGEMENT

First, we remain our greatest gratitude to the almighty Allah S.W.T, for His will, we managed to complete this Final Year Project thesis.

The production of this thesis involves many valuable contributions from a number of people. We especially thank to our advisor, Encik Zamri bin Abdul Rahman for giving us the opportunity to work on this project. We appreciate and admire his professionalism and deep technical knowledge in this area. His invaluable guidance, assistance and patience have definitely ensured the successful completion of project.

To our beloved family, thank you for your full love, support and encouragement, also for understanding our long busy days finishing this project.

To our housemate Farizal, Suhaimi , Suzairin and Ahmad Majdi, thank you for your assistance and helpful comments on our project.

To S. Faradybah, thank you for your favour in completing this Final Year Project Thesis. To our friend not mentioned here, we enthusiastically thank you all.

Last but never least, to Ahmad Shehan Nordin, thank you for lending us your computer which very significant in completion of this project.

ABSTRACT

This project study is based on experimentation done by previous students. Their experimentation are done to obtain the dynamic characteristics of Polymeric Foam Material as an impact energy absorbent medium. Their experiment has been done under low speed and high impact condition. This project uses information obtained to program a Graphical User Interface (GUI) to display the characteristic of polymeric foams. There are four types of specimen of polymeric foam for this study, which are EPERAN P15, EPERAN P30, EPERAN E38 and EPERAN EA38. The main objective of this project is to program the interface to present the result of those EPERAN's specimens characteristics. GUI-building tool from software MATLAB is being used in the programming of interface. Hopefully, this project is pioneer in designing system which gives details data of polymeric foams characteristics.

TABLE OF CONTENT

	Page
DECLARATION	II
ACKNOWLEDGEMENT	III
ABSTRACT	IV
NOMENCLATURE	V
TABLE OF CONTENT	VI
 CHAPTER 1 : LITERATURE REVIEW	
1.1 Polymeric foam to meet safety requirement	2
1.2 Modeling Polymeric Foams As Deformable Bodies	9
1.3 Family of Foam-Performance Characteristic and Application Area	12
1.4 EPERAN	15
1.5 Programming Language	21
1.6 MATLAB Programming	23
1.7 Graphical User Interface (GUI) in MATLAB	24
 CHAPTER 2 : THEORETICAL FOUNDATION	
2.1 Impact Velocity	33
2.2 Deflection, Velocity and Energy	34
 CHAPTER 3 : METHODOLOGY	
3.1 Design Process	40
3.2 Overlapping Approach Implies in the Development of the Program	41
3.3 Project Goal	42
3.4 Structure of the Program	43
3.5 Program Implementation	47
3.6 Presentation	48

CHAPTER 4 : RESULTS AND DISCUSSIONS

4.1	Results	57
4.2	Summaries	68
4.3	Problem Faced in Implementation	78
4.4	Discussion	80

CHAPTER 5 CONCLUSION AND SUGGESTIONS

5.1	Conclusion	81
5.2	Suggestions	82

BIBLIOGRAPHY	83
---------------------	----

APPENDIX A (Experimentation Results)**APPENDIX B (GUI Coding)**