

**DEVELOPMENT AND IMPROVEMENT OF THE CAR SEAT
POLYURETHANE INJECTION MOULDING PROCESS**



BY

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Tuan,

TAJUK PROJEK : DEVELOPMENT AND IMPROVEMENT OF THE CAR SEAT POLYURETHANE INJECTION MOULDING PROCESS

Dengan hormatnya perkara di atas adalah dirujuk.

Sukacita dimaklumkan bahawa Mesyuarat Jawatankuasa Penyelidikan ke-72 pada 22 Julai 2004 telah meneliti pindaan yang tuan kemukakan dan membuat keputusan :

i. Bersetuju meluluskan cadangan penyelidikan yang telah dikemukakan oleh tuan, dan En Jamaluddin Bin Mahmud.

ii. Tempoh projek penyelidikan ini ialah **12 bulan**, iaitu bermula **1 Ogos 2004** hingga **30 Julai 2005**.

iii. Kos yang diluluskan ialah sebanyak **RM43,970.00** sahaja dari Geran MOE. Penggunaan geran yang diluluskan hanya akan diproses setelah perjanjian ditandatangani.

iv. Tuan perlu membelanjakan **50%** daripada geran penyelidikan yang telah diluluskan bagi projek tuan dalam tempoh **6 bulan** pertama projek berjalan. Sehubungan itu, pihak IRDC akan memantau penggunaan geran penyelidikan tuan untuk memastikan **50%** daripada jumlah geran yang diluluskan telah dibelanjakan sehingga bulan **November 2004**.

v. Semua pembelian peralatan yang kosnya melebihi RM500.00 satu item perlu menggunakan Pesanan Jabatan Universiti Teknologi MARA (LO). Pihak tuan juga dikehendaki mematuhi peraturan penerimaan peralatan. Panduan penerimaan peralatan baru dan pengurusannya, dilampirkan.

vi. Semua peralatan/kelengkapan penyelidikan yang dibeli adalah menjadi hak milik fakulti. Semua peralatan/kelengkapan hendaklah diserahkan kepada pihak fakulti setelah tamat penyelidikan untuk kegunaan bersama.

vii. Seperti yang tuan sedia maklum tuan perlu membentangkan kertas kerja di Seminar Hasil Penyelidikan IRDC setelah projek tamat dijalankan nanti.

viii. Kertas kerja boleh dibentangkan di seminar selain daripada yang dianjurkan oleh IRDC setelah 75% deraf awal laporan akhir projek dihantar ke IRDC untuk semakan. Walau bagaimanapun, tuan perlu membuat permohonan kepada pihak kami.

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ABSTRACT

The development and improvement of the automotive seat is attracting increased attention from vehicle manufacturers. It is recognized that seat styling, comfort and its ergonomic functions as well as safety contribute to the initial appeal of a vehicle towards its customer; in other words meeting customer satisfaction. The durability of the car seat can be reflected in the vehicle's residual value. Car seat polyurethane injection (p/u) moulding process is a method of producing car seat in an attempt to meet the said objectives. This project has explored the application of an industrial robotics and the development of flexible line automation for car seat polyurethane injection molding process using work study method and Delmia Quest Simulation Software (DQSS). Financial analysis was then carried out in determining the Payback Period to justify the actual investment cost before it is materialized. Comparisons between proposed methods against the existing method was done to identify the improvements in terms of productivity and product quality and eventually cost effectiveness achieved; through layout improvements, line automation and robotics applications.

Keywords: Robotics, Line Automation, Polyurethane Injection, Car Seat, QUEST® (Discrete-event simulation software).