UNIVERSITI TEKNOLOGI MARA

JIIICaS 2024
JOHOR INTERNATIONAL INNOVATION, INVENTION COMPETITION AND SYMPOSIUM

PROCEEDINGS OF JOHOR INTERNATIONAL INNOVATION INVENTION COMPETITION AND SYMPOSIUM 2024 (JIIICaS 2024)

"Flourish and Nurturing Sustainable Innovation for a Prosperous Nation"

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JOHOR INTERNATIONAL INNOVATION, INVENTION COMPETITION AND SYMPOSIUM

Editorial Board

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Preface

In the name of Allah, the Almighty who gives us the enlightenment, the truth, the knowledge and with regards to Prophet Muhammad (peace be upon him) for guiding us to the straight path. We thank to Allah for giving us guidance and strength to write this e-book.

This e-book compiles the extended abstracts that submitted to Johor International Innovation Invention Competition and Symposium 2024 (JIIICaS2024), where JIIICaS2024 is a virtual platform for all creative minds to share and present their invention and innovation. Each abstract gives a brief background on the innovation or project.

We hope that this e-book will help the readers to get to know the innovation done by the students and get some ideas to develop future innovation products.

Foreword Rector

Assalamualaikum warahmatullahi Wabarakatuh, Salam Sejahtera, Salam Malaysia MADANI and Salam UiTM Dihatiku.

In the name of Allah, the Most Gracious, the Most Merciful.

It is a great honor to welcome you to the Johor International Innovation, Invention, Competition, and Symposium 2024 (JIIICaS 2024). This event connects various disciplines, focusing on education and engaging educators, students, researchers, and innovators from all walks of life.

Innovation is not just about ideas; it demands perseverance, creativity, and determination to turn those ideas into reality. The remarkable projects showcased today highlight the dedication and spirit of all participants. Initiatives like this not only explore new technologies but also cultivate skills and leadership among our youth. At Universiti Teknologi MARA (UiTM) Johor Branch, we are fully committed to fostering a dynamic culture of innovation, promoting the commercialization of new products, and encouraging meaningful collaborations with industry and society.

As we celebrate this event, I would like to extend my heartfelt gratitude to all sponsors, judges, the College of Computing, Informatics and Mathematics, UiTM Pasir Gudang Campus as the event organizer, as well as to the researchers and participants for their hard work in making this event a success. Let us continue striving for innovation and excellence. May the ideas presented today inspire us and lay the groundwork for future achievements.

Thank you.

Associate Professor Dr. Saunah Zainon
Rector
Universiti Teknologi MARA (UiTM)
Johor Branch

(A-ST021) MESIN MINI *SOAPER*

Hafsa Mohammad Noor[1,2], Mahathir Mohd Akhar[1], Mohamad Amierul Iqmal Mohd Muzaffar[1], Amirul Sharafuddin Ahmad Faizal[1]

[1] Jabatan Kejuruteraan Mekanikal, Pusat Pengajian Diploma, Universiti Tun Hussein Onn Malaysia, Hab Pendidikan Tinggi Pagoh, 84600 Pagoh, Johor, MALAYSIA
[2]Sustainable Product Development (S-ProuD), Pusat Pengajian Diploma, Universiti Tun Hussein Onn Malaysia, Hab Pendidikan Tinggi Pagoh, 84600 Pagoh, Johor, MALAYSIA

Penulis koresponden: hafsa@uthm.edu.my (Hafsa binti Mohammad Noor)

ABSTRAK

Minyak masak adalah sejenis cecair yang digunakan dalam kalangan pengguna bagi tujuan memasak. Pembuangan sisa minyak masak yang tidak terkawal akan menyebabkan pencemaran alam sekitar. Pencemaran alam sekitar yang tidak dibendung akan menjurus kepada kerosakkan ekosistem yang juga memberi kesan buruk kepada kehidupan manusia. Tujuan utama projek ini adalah untuk menghasilkan sebuah model Mesin Mini Soaper yang berkeupayaan untuk mengadun dan membentuk sabun buku berasaskan minyak masak terpakai. Kelajuan motor pengadun Mesin Mini Soaper ditetapkan pada 150 rpm yang mana mampu mengadun sebati minyak masak terpakai, air dan Natrium Hidroksida (NaOH) dengan nisbah 3:2:1 hanya dalam masa 10 minit. Campuran yang telah sebati kemudiannya dikeluarkan mengikut saluran paip dan dimasukkan ke dalam pemanas. Proses pemanasan bahan campuran berlaku pada dua proses iaitu masak dan hangat. Masing-masing mempunyai suhu yang berbeza iaitu 100°C dan 60°C. Proses pemanasan masak akan beroperasi selama 1 jam manakala panas selama 1 jam 30 minit. Selesai proses pemanasan, campuran ini akan membeku dan membentuk menjadi sabun. Kajian menunjukkan bahawa mesin ini mampu meningkatkan produktiviti pengeluaran sabun berbanding dengan kaedah tradisional kerana proses pengerasan campuran menggunakan pemanas adalah lebih baik berbanding kaedah tradisional. Hasil sabun buku juga boleh terus digunakan berbanding dengan kaedah tradisional yang memerlukan masa selama 24 jam bagi tujuan pengerasan dan perlu melalui proses pemeraman selama satu bulan sebelum hasil sabun boleh digunakan. Mesin Mini Soaper dapat menjimatkan sebanyak 67% masa berbanding menggunakan pemukul telur dan sebanyak 50% berbanding alat pengacau automatik. Penggunaan mesin ini juga boleh menggalakkan amalan kitar semula minyak masak terpakai.

Kata Kunci: Kitar Semula, Mesin Sabun Buku, Minyak Masak Terpakai