

**(1) Researcher Background**

1.	Lead Researcher	MUHAMMAD BIN MUSTAPHA
2.	Address Research Institute	POLITEKNIK IBRAHIM SULTAN KM10 JALAN KONG KONG, 81700 PASIR GUDANG, JOHOR
3.	Team Members	FIRDAUS BIN ALI SALIM BIN BACHOK SITI RAHAIDA BINTI ABDULLAH ZAILANI BIN ABD GHANI
4.	Field of Research Expertise	MECHANICAL SYSTEM MATERIAL PROPERTIES AND SELECTION ELECTRONIC SYSTEM AUTOMATION AND CONTROL SYSTEM
5.	Contact Information (phone/email)	072612488 / 0177290002 firdausali.poli@1govuc.gov.my

# PROJECT PROPOSAL

*Demand-Driven Innovation Project by Public-Private Research Network (PPRN)*

## AUTOMATED COFFEE BEAN CHILLER MACHINE

### Content:

#### **(i) Background of the project**

HAMIDY COFFEE INDUSTRIES is a coffee bean processing company which majority of the processing operation were done manually by the workers. Due to the overwhelming demand from the consumer, the industry would like to convert the manual operation to a fully automated system in order to increase the production quantity and to reduce the workers load during the coffee bean process operation.

#### **(ii) Problem statement**

The industry needs an automation system that capable to pour, spread and chill 32kg of coffee bean which currently operated manually by the workers. There are machines available in the market but only capable to pour the coffee bean on a plate using hydraulic system and the cost is too high and do not meet the industry requirement.

#### **(iii) Project Objective**

AUTOMATED COFFEE BEAN CHILLER MACHINE would solve the problem by achieving the objectives of:

1. Design and fabricate a fully automated machine that capable to chill 32kg of fried coffee bean in a cycle with less effort and less time consumption.
2. Installing automated machine complete with an industrial controller and Human-Machine Interface touch panel for easy and user-friendly fully customizable operation.

**(iv) Proposed solution**

We have proposed solution to convert coffee bean chilling process from manual operation to fully automated operation. The solution called AUTOMATED COFFEE BEAN CHILLER MACHINE. The AUTOMATED COFFEE BEAN CHILLER MACHINE is consists of a hopper, bucket, shaker, drainage, chilling system, controller and control panel. The AUTOMATED COFFEE BEAN CHILLER MACHINE is to automatically spread the fried coffee bean in a thin layer on a bucket with netted base for a quick chilling process. The shaking intensity, fan speed and the overall operation cycle time of AUTOMATED COFFEE BEAN CHILLER MACHINE can be adjusted by the operator using HMI touch panel for a fully customizable chilling process to meet various needs of operation cycle. The worker will not need to manually spread the coffee bean on a plate to chill the fried coffee bean with the invention of AUTOMATED COFFEE BEAN CHILLER MACHINE. Figure 1 and 2 as per attachment were the general outlook of the proposed fully automated machine.