

SUBMITTED BY: STEPHEN LANIER, VICE PRESIDENT FOR RESEARCH

**UNIVERSITY CONTRACT WITH IC, LLC,
A COMPANY CO- OWNED BY A
WSU COLLEGE OF ENGINEERING FACULTY**

RECOMMENDATION

The Administration recommends the Board of Governors authorize the President or his designee to enter into a contract agreement, Ion Current for Engine Control, with IC, LLC, a company co-owned by Dr. Naeim Henein, for a project that will provide more information about the ion current technology for engine control pioneered by IC, LLC.

BACKGROUND

Naeim Henein, Ph.D, distinguished professor of Mechanical Engineering in the College of Engineering has developed technology and methodology related to decoding the ionization signature during combustion of air/fuel mixtures in internal combustion engines.

The technology has been disclosed to the university and is described in WSU Tech IDs 09-924, 10-982, 11-1009, 11-1034, 12-1073, 13-1160, and the technologies have issued patents or patent applications. .

IC, LLC is a company founded by Detroit Engineered Products, and Dr. Henein together with his former graduate student, Dr. Tamer Badawy. Detroit Engineered Products is a Detroit area engineering services and product development company with engineering offices in Troy, Michigan; Shanghai and Beijing, China; Chennai, India; and additional offices in Germany, Italy, Korea and Japan. It is the intent of IC, LLC to further develop the technology for research and development applications for global engine manufacturers as well as for volume production applications in engine control systems for automotive, motorized scooters, off road farm and construction equipment, and military applications.

Michigan Conflict of Interest law requires specific sunshine procedures in order for a University employee, or a company owned by a University employee, to contract directly or indirectly with the University:

- (A) The employee must disclose any pecuniary interest in the contract to the Board and the disclosure must be made a matter of record in the Board's proceedings.
- (B) The contract must be approved by a vote of not less than two-thirds of the full membership of the Board in open session.
- (C) The Board's minutes must report:
 - (i) The name of each party involved in the contract.

(ii) The terms of the contract, including duration, financial consideration between the parties, facilities or services of the public entity included in the contract, and the nature and degree of assignment of employees of the public entity for fulfillment of the contract.

(iii) The nature of any pecuniary interest.

If the Board approves this Recommendation, the minutes will report as follows:

The Board of Governors authorized the President, or his designee, to contract with IC, LLC, of which Dr. Naeim Henein, distinguished professor of mechanical engineering, holds an equity position. The contract will grant IC, LLC an exclusive license to the Technology known as “Ion Current Sensing for Control of Internal Combustion Engines.”

- (i) The parties involved in the contract are Wayne State University and IC, LLC.
- (ii) The contract, Ion Current for Engine Control, in the amount of \$69,524, is in support of the performance of a research program. This includes comparing the ion-based predicted parameters and measurements made by different sensors and sensing systems. These parameters include combustion, performance and emission parameters on a cycle-by-cycle basis. Also, it includes identifying the predicted parameters that need research and development to improve the agreement with measurements made by different devoted sensors and sensing systems. This contract will assist with determining areas in need of further research and development by IC, LLC, to improve their accuracy and ability to replace other competing sensors and sensing systems.

The period of the contract is April 1, 2016 to March 31, 2017;

- (iii) Dr. Henein’s pecuniary interest consists of an OWNERSHIP INTEREST, holding 37.5% equity interest in IC, LLC, and will therefore have the potential to financially benefit from the commercial success of the company, including the commercialization of the University’s Technology known as “Ion Current Sensing for Control of Internal Combustion Engines.”