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October 7, 2020

Mr. George Spehar
Development Engineer
Gates Corporation
2975 Waterview Drive
Rochester Hills, MI 48309-4600

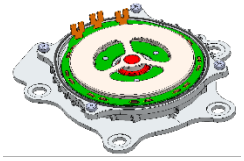
Re: Data Acquisition & Test System for EF and CB Module
ACS Proposal No.: 20937-16R3

Dear George:

ACS is pleased to submit the following proposal for an electric motor and controller test system in a phased approach. The output of this project will provide Gates with data acquisition components, an LCR meter, a programmable power supply and LabVIEW™ programming services.

Our proposal consists of the following sections: **Project Requirements, Scope of ACS Solution, Deliverables, Services, Price, Schedule and Terms**.

1.0 Project Requirements



ACS' current understanding of Gate's project is to provide motor and controller electrical testing and must meet the following requirements:

- Test module for ECB test.docx

2.0 Scope of ACS Solution

ACS will provide a test system that features the following components:

- DAQ hardware for controlling PWM signals, reading PWM signals, reading phase voltages, sensing phase currents, and switching internal power and signal relays
- LCR meter for reading coil resistance and inductance
- Programmable power supply, 1200W, 60A max, 80V max.

The system will provide the following I/O channels:

Type	Description	Channel Qty
PWM Out	5V, 25Hz with varying duty cycle	1
Frequency In	~10V-12V varying frequency (up to approx. 133Hz)	1
Resistance	Coil resistance measurement – switchable between all three phases	3
Inductance	Coil inductance measurement – switchable between all three phases	3
Phase Voltage	Up to 60V sensing of voltage waveforms between each motor phase	3
Phase Current	Up to 20 A_{rms} sensing of current waveforms on each motor phase	3

The project scope includes three (3) blocks of 40 hours of engineering in a combination of both remote and on-site (Rochester Hills, MI area) engineering services for developing the test application. The three phases are as follows:

- Phase 1: Establish communication and develop drivers for instruments and DAQ. Create basic stand-alone functions to perform main tests.
- Phase 2: Create full sequence engine with preliminary operator prompts. Generate final, detailed test sequences.
- Phase 3: Refine GUI and report generation. Improve fault tolerance and error handling. Final "Full Up" system debug and acceptance.

The test application will include the following tests and we are confident that the quoted hours will be sufficient to complete the software development as currently defined.

Name	Description
Phase Resistance	Measure the resistance between all three phases.
Phase Inductance	Measure the inductance between all three phases.
RPM vs Current	Measure the phase currents from 300 RPM to 6000 RPM in TBD RPM steps.
Back EMF	This will be a calculation based on phase currents and voltages.
RPM vs Commanded	Command various RPMs and compare command (PWM) vs returned frequency.
RPM vs Commanded (low voltage)	Execute RPM vs Commanded at 9V supply voltage.
RPM vs Commanded (high voltage)	Execute RPM vs Commanded at 16V supply voltage.

Test results will be stored in a text file (e.g. CSV format).

2.1 Clarifications and Assumptions

1. Gates will supply a motor controller, verified to work with the UUT. ACS requests a known good unit and a known failed unit.
2. Gates is responsible for all fixturing, ACS is not supplying any mechanical components to interface with the UUT.
3. Gates is responsible for providing a computer to run the software on once the ACS engineer departs.
4. The system does *not* include an operator PC, enclosure, table, work surface, wire, cabling, or a UPS for uninterrupted power.
5. The system does *not* include any licensed software beyond Windows, (e.g. LabVIEW). A debug version can be installed on the system or an executable version of the software can be created if desired.
6. Travel time is billable.

3.0 Deliverables

ACS will provide the following deliverables as part of this project:

1. NI cDAQ chassis and modules
2. LCR meter
3. Programable power supply
4. All LabVIEW software created for the test stand

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4.0 Services

ACS will provide the following services as part of this project:

1. Phase 1: 40 hours of on-site and remote engineering services.
2. Phase 2: 40 hours of on-site and remote engineering services.
3. Phase 3: 40 hours of on-site and remote engineering services.

5.0 Price, Schedule and Terms

5.1 Price

ACS proposes to provide the deliverables listed above and all professional services for this project for a fixed price of **$20,600 i**s the cost through Phase 1, each additional block of 40 hours is at an additional charge of **$6800**. On phases two and three ACS will only invoice for actual hours used or at Gates' option additional hours can be carried forward through 2021 and can be applied to training or engineering services.

5.2 Schedule

Estimated duration after starting work to completion of the EF and CB Tester is **6 weeks**, each additional block of hours, if contiguous without breaks, will add a week to the project schedule. Exact start date and project duration to be coordinated with Gates after the order is placed, as component lead time and ACS workload is subject to change. Design changes and/or awaiting requested information may also affect project duration.

5.3 Terms

The proposal terms are outlined below. ACS is willing to discuss these terms and conditions at the customer's request.

Delivery location defined as:

- Gates Corporation, Rochester Hills, MI

Invoice Schedule is as follows:

- 60% due after receipt of purchase order
- 40% due upon acceptance (not to exceed 60 days after shipment)
- Invoiced net 30 days

Proposal valid for:

- 30 days

Warranty Terms:

- See included "Equipment Warranty"

Tax:

- The prices in this proposal do not include local or state sales tax
- If project is tax exempt, please provide tax exempt documentation with purchase order. If not tax exempt, please apply the appropriate tax rates to the total purchase order amount.

Freight:

- EXWorks per INCOTERMS 2010

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This proposal is based on our current knowledge of the project. At your request, we can adapt this proposal to reflect any revised project goals. We are looking forward to this project and further developing our long-term relationship with Gates. Please feel free to contact me at 248-606-0775 with any questions.

Thank you for this opportunity.

Best regards,
ACS

Darryn R. La Zar
Director, Business Development

Inclusions:
ACS "Equipment Warranty"

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6.0 Warranty

6.1 Equipment Warranty

ACS warrants that ACS' manufactured equipment shall be free from defects in workmanship and will conform to criteria agreed upon by ACS and customer ("the Warranty") for a period of the earlier of eighteen (18) months from shipment of the Equipment or twelve (12) months from customer acceptance of the Equipment (the "Warranty Period"). Customer's complete order must be paid in full for the warranty responsibility to apply. ACS' liability under this Warranty shall be limited to the purchase price of the Equipment. Additional warranty protection is available on an extra-cost basis and must be agreed to in writing by ACS. Except for the warranty expressly set forth herein, ACS does not make, and hereby expressly disclaims, any other warranties, express or implied.

6.2 Equipment Warranty Exclusions

The Warranty shall apply to Equipment manufactured by ACS when ACS performs commissioning of the Equipment or when Equipment is installed, started and commissioned in accordance with ACS' installation guidelines. Exclusions from the Warranty include damage or failure arising from the following: (i) wear and tear under normal usage; (ii) corrosion, erosion, or deterioration or exposure to weather elements; (iii) modifications, repairs or alterations made by a party other than ACS to the Equipment; (iv) vandalism or abuse, neglect, accident; (v) the occurrence of a force majeure event; (vi) improper use; (vii) improper installation; (viii) unusual physical or electrical or mechanical stress including excessive, insufficient, or improper power line voltage; (ix) operation with any accessory, equipment, or part not specifically approved by ACS; and/or (x) lack of proper maintenance. ACS makes no representation or warranty regarding the effects of use of the Equipment, including the presence of mold, fungus, bacteria or any other contaminants.

6.3 Manufacturers' Warranties

Equipment, materials and/or parts manufactured by ACS are warranted directly by ACS. For other equipment, materials and/or parts which are not manufactured by ACS, the manufacturer's warranty shall apply.

6.4 Equipment Warranty Service

ACS' obligations and liabilities for non-conformance with this warranty are limited to furnishing repairs, replacement parts, or replacement equipment, whichever method, in ACS' discretion, will bring the equipment into compliance with the warranty.