TECH 646 Analysis of Research in Industry & Technology
Hw 10 and Final Project Schedule
For the team on
“IoT and HVCA Technology”

Assigned date: Monday, Nov. 14, 2016

Follow up on the Mid-Term Project proposal (15% of the semester grade) submitted Oct. 13, 2016
Each team should continue its proposed research and prepare a Project Proposal which will be used throughout the final project. The project proposal should include the following sections (see pp. 114-118) and incorporate the findings from your previous homework assignment on research questions and hypotheses:

- Project Title, Problem Statement, Research Objectives, Important Benefits, Research Design (see Ch. 6), Data Analysis, Results: Deliverables, Budget, and References
- Note: Proper drawings, diagrams should be added (use Microsoft Visio), A Gantt Chart for the proposal should be also considered.

Each team also asked to prepare related progress report that will contribute to the final project:

- Hw 8- Progress report, submitted Nov. 3, 2016
- Hw 9 – Survey Research on Outlook Significance (IoT and HVAC project); Statistical sampling plan, testing confidence level, precision and accuracy, testing sample size

The activities and deliverable items for each team are listed below:

- Hw 10 – due Nov. 21, 2016
- Final Report Sections and Template, due Nov. 24, 2016
- First Draft of Final Project Report, due Dec. 8, 2016
- Final Report and PPT Slide due Dec. 15 (Thursday), 2016 before 5PM
- Final Project Presentation, Dec. 15, 2016, 6 PM to 8:45 PM

The HW 10 for the team working on “IoT and HVCA Technology, due Nov. 21, 2016
The team is asked to focus on the Exploratory Study based on the available secondary data, with some reference listed below. The team is encouraged to find more references for your study.

The team is asked to prepare your intermediate report to answer the following suggested outline and questions

1. Purpose of IoT and HVAC Technology Research (due Nov. 21)
   - Conduct an exploratory research to gain more understanding of IoT-Enabled HVAC System – Challenges and Implication
   - IoT-enabled HVAC: how can it be a part of the Smart Building, Smart Home, Smart City
   - How energy efficiency improvement through IoT is possible
   - Other commercial benefits and applications
2. Understanding of IoT (due Nov. 21)
   - Definition of IoT
   - IoT Generated Data
• Big data

3. IoT-enabled HVAC system (due Nov. 21)
   • Current status of the IoT-enabled HVAC (Literature Review)
   • Research: Studies and report findings
   • Major Subsystems and System of the expected system
   • IoT-enabled HVAC product development (various stages)
   • IoT and HVAC Technology Integration Strategy
   • Market Research (secondary research)

4. Proposed IoT Technology and Platform for HVAC Application (due Dec. 8)
   • IoT Platforms
   • IoT Network Architecture
   • IoT Gateway
   • IoT Data Storage, Database, and Data Centers
   • IoT Network Management
   • IoT Data and Network Security
   • IoT-enabled HVAC Architecture and Framework

References: IoT and HVAC Technology Integrations

• IoT Overview,
  o Lecture Note 1, CPET 5981 Internet of Things, Lecture Note 1,
• IoT and HVAC Integration and Strategy
  o HVAC Integration, the past, the present, and the future, https://coolautomation.com/wiki/how-do-we-make-hvac-integration/
IoT Gateways perform such critical functions:

- Device connectivity, protocol translation, data filtering and processing, security, updating, management
- Cisco
- IBM
- AT&T