**CPET 565/CPET 499 Mobile Computing Systems**

**Assignment 6-1**

**Team Formation for Assignment 3:**

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**Assigned date: 10/10/2012**

**Assignment 6-1 Due Date: 10/24/2012, before 3:30 PM**

**Assignment 6-1 (Team Assignment) - Design of Mobile Applications and Information Architectures and Related Tradeoff Study**. Use the guidelines as shown below to prepare a Design Report of Mobile Applications and Information Architecture for the Mobile App Pilot Project (continuation of Hw5).

* Executive Summary
* Mobile Computing/Information Service Environment
* Mobile Information Services
	+ Information Service Types
		- Pull (on-demand)
		- Push (broadcast)
		- Synchronization
		- Disconnected operation
		- Other
	+ Connection types
		- Weakly connected
		- Always connected
		- Disconnected
	+ Responsibilities and Requirements: Client, Middleware, Server **(provide use case scenarios)**
		- Data collection/transformation
		- Business Logic
		- Data sharing
		- Database access
		- Services
			* Peer-to-Peer
			* Mobile Web Portal
			* Email
			* Reporting
			* Location
			* Context aware
			* Push-based Services
				+ SMS Notification Message
				+ Event Notification
				+ Video/voice streaming
				+ Localization
	+ Considerations/Constraints
		- Resource usage
		- Scalability
		- Openness
		- Heterogeneity
		- Fault tolerance
		- Resource sharing
		- Privacy/Security
		- User Interface
		- Application Restrictions: data aggregation
* System Design and Architecture **(diagrams are needed)**
	+ Communication Interface
	+ Security/Authentication Interface
	+ Hardware Architecture
		- Hardware structure of the system server
		- Hardware structure for the mobile client (host)
		- Peer-to-Peer?
	+ Software Architecture
		- Software structure and functions of the server
		- Software structure for the mobile client (host)
		- Peer-to-Peer?
		- Middleware
* Trade-off Analysis

**Assignment 6-1 Due Date: 10/24/2012, before 3:30 PM**

**\*\* Team’s PPP file and a Design Report should cover at minimum the ITEMS appear in suggested guidelines.**

**References**

1. T. Kunz and J. Black, “An Architecture for Adaptive Mobile Applications,” 1999, <http://reference.kfupm.edu.sa/content/a/r/an_architecture_for_adaptive_mobile_appl_466010.pdf>
2. J. Jing, A. Helal, and A. Elmagarmid, “Client-Server Computing in Mobile Environments,” 1999, <http://www.cs.unm.edu/~darnold/classes/papers/Jing99Client.pdf>
3. R. Jain, A. Umar, and A. Umar, “A Comparison of Mobile Agent and Client-Server Paradigms for Information Retrieval Tasks in Virtual Enterprises,” Telcordia Technologies, Inc., 2001, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.16.8013.pdf>
4. B. P.S. Rocha, C. G. Rezende, and A. A. F. Loureiro, “Middleware for Multi-Client and Multi-Server Mobile Applications,” <http://security1.win.tue.nl/~bpontes/pdf/mobmid.pdf>
5. H. Schneider, V. Lee, and R. Schell, “Ch. 3 Introduction to Mobile Application Architectures,” **Mobile Applications: Architecture, Design, and Development**, Pearson Information IT, Oct. 15, 2004, <http://www.informit.com/articles/article.aspx?p=336262>
6. H. Schneider, V. Lee, and R. Schell, “Ch. 4 Mobile Application Architectures,” **Mobile Applications: Architecture, Design, and Development**, Pearson Information IT, Extracted lecture note available from [www.philadelphia.edu.jo/academics/mmaouch/uploads/MobileApplicationArchitectures.ppt](http://www.philadelphia.edu.jo/academics/mmaouch/uploads/MobileApplicationArchitectures.ppt)
7. R. A. Bairat, “Client-Server Computing in Mobile Environment,” ppt presentation, <http://sce.uhcl.edu/yang/teaching/csci5939wap/client-servercomputinginmobileenvironments.ppt>
8. E. Pop, M. Barbos, and R. Lupu, “Client Server System for e-Services Providing in Mobile Communications Networks,” Proceedings of the World Congress on Engineering 2008, Vol. III, WEC 2008, July 2-4, 2008, London U.K., <http://www.iaeng.org/publication/WCE2008/WCE2008_pp1808-1813.pdf>
9. Feng Gui, Development of a New Client-Server Architecture for Context Aware Mobile Computing, Ph.D. Dissertation, Florida International University, <http://digitalcommons.fiu.edu/cgi/viewcontent.cgi?article=1248>
10. Mobile Information Client, AGileDelta, <http://www.agiledelta.com/product_mic.html> , [accessed )ct. 9, 2012]
11. G. M. Weiss and J. W. Lockhart, “A Comparison of Alternative Client/Server Architectures for Ubiquitous Mobile Sensor-Based Applications, 2012, <http://www.denzilferreira.com/UbiMI/2012/UbiMI2012-weiss-paper.pdf>

Complete links for references

[3] <http://www.google.com/url?sa=t&rct=j&q=a%20comparison%20of%20mobile%20agent%20and%20client-server%20paradigms%20for%20information%20retrieval%20tasks%20in%20virtual%20enterprises&source=web&cd=1&cad=rja&ved=0CB4QFjAA&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.16.8013%26rep%3Drep1%26type%3Dpdf&ei=0dGAUNWkMqu30AGI14CwDQ&usg=AFQjCNEv7FbeNsha77B9xqZdu8nCuBJufg>

[9] <http://www.google.com/url?sa=t&rct=j&q=development%20of%20a%20new%20client-server%20architecture%20for%20context%20aware%20mobile%20computing&source=web&cd=1&cad=rja&ved=0CB4QFjAA&url=http%3A%2F%2Fdigitalcommons.fiu.edu%2Fcgi%2Fviewcontent.cgi%3Farticle%3D1248%26context%3Detd&ei=qdGAUJutGunH0AGYpYCwBw&usg=AFQjCNGzD-TUVPZzEhjWY9KgQdlGuMLGaw>