

DESIGN AND DEVELOPMENT OF AN AUTOMATED WIRELESS QUIZ MANAGEMENT SYSTEM

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ABSTRACT

The *Automated Wireless Quiz Management System* is designed and developed for a competition environment. The wireless quiz management system, which integrates with the database system, the quiz organizer and competitors, can be communicated to each other via wireless module. The quiz management application is being designed in order to control the Wireless Quiz Management System and display the quiz on the screen.

The organizer able to control the entry of the competitors up to 3 competitors, update the questions and monitor the organizer wireless module in the quiz management applications. The competitors will be able to connect to the master transceiver (named organizer board) if the address is being added in the quiz management application the quiz can be started once the competitors are connected to the quiz organizer and the Personal Area Network (PAN) will be formed.

Automated Wireless Quiz Management System is designed based on the Microchip microcontroller PIC18LF4685 and microchip wireless module MRF24J40MA. The wireless communication is using the microchip wireless protocol (MiWi™ P2P) which provides the reliable direct wireless communication and the ease of implementation. The organizer board consists of PIC18LF4685, MRF24J40MA, LEDs and MAX3232, and the competitor board consists of PIC18LF4685, MRF24J40MA, LEDs, 4x20 LCD display, buzzer, buttons and MAX756 voltage regulator.

During the testing process, it is proven that competitors are able to display received information to LCD module and response to the organizer via buttons, the organizer is able to control the system by using the application, and communicate with competitors by connecting computer to MAX3232 on organizer board. The competitor boards are made to be portable with the designed battery supplied step-up voltage regulator MAX756.

In short, the objectives and goals of the system are achieved with satisfying results. All the proposed functions are also working efficiently as expected. It is believed that in the future a better version of the wireless quiz management system with even more functionalities will be developed.