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10

WIRELESS SMOKE DETECTOR SYSTEM

By
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**DEPARTMENT OF PHYSICAL SCIENCES
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**JABATAN SAINS FIZIK
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PENGAKUAN DAN PENGESAHAN LAPORAN PITA I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk : **WIRELESS SMOKE DETECTOR SYSTEM** oleh **AIMI LIYANA BINTI AZLAN**, no. matrik: **UK12470** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Fizik sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah Sarjana Muda Sains Gunaan (Fizik Elektronik & Instrumentasi) Fakulti Sains dan Teknologi, UMT.

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DECLARATION

I hereby declare that this thesis entitled Wireless Smoke Detector is the result of my own research except as cited in the references.

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ABSTRACT

Many factors can caused fire occur. Including careless, not concern attitude, strand of metal and electric device damaged. Fire Department have found that electric is a main source which make fire occur. Then, next source is a stump of cigarette and also the fire sprinkle. All the scenes, usually occur at home and office. Consequently, all the material were damaged and the rate of fatal increased. In order to overcoming such problem, a wireless smoke detector system which is can detect a fire occur at the first state was developed. It was very important for the first warning because fire and smoke can disseminate quickly, so the gases produced can make everyone unconscious. With this system, safety action can be taken earlier and the rate of fatal also decreased. The project entails the design and engineering of a wireless smoke detector unit and network. The hardware module includes the PIC (Peripheral Interface Controller) microcontroller, smoke detector, remote control decoder, transceiver and receiver. The software component includes the program and code implemented via the PIC microcontroller. In its completion and entirety, the smoke detector unit properly functions and in the manner it was originally planned and designed.

ABSTRAK

Banyak faktor yang boleh menyumbang berlakunya sesuatu kebakaran. Antaranya ialah kecuaiian, sikap tidak ambil tahu, kerosakan pendawaian, dan peralatan elektrik. Jabatan Bomba mendapati elektrik adalah punca utama berlakunya kebakaran, kedua ialah puntung rokok dan ketiga ialah percikan api. Semua kejadian ini biasanya berlaku di premis kediaman dan bangunan-bangunan pejabat. Akibatnya harta benda musnah, dan kadar kematian meningkat. Oleh itu, satu sistem diperlukan untuk mengatasi masalah ini. Sistem tersebut ialah alat pengesan asap yang dapat mengesan kebakaran dari peringkat awal. Sistem pengesan tanpa wayar ini dibina bagi memastikan keselamatan diri dan harta benda lebih terjamin. Amaran awal amat penting kerana api dan asap merebak dengan cepat, gas yang terhasil boleh membuatkan seseorang tidak sedarkan diri dan pengsan. Dengan adanya sistem ini, langkah keselamatan dapat diambil dan mengurangkan kadar kemalangan serta kematian. Projek ini memerlukan reka bentuk dan kejuruteraan daripada unit pengesan asap tanpa wayar dan rangkaiannya. Modul peralatan yang digunakan termasuklah mikropengawal, pengesan asap, alat pengawal dekod, pemancar dan juga penerima. Manakala komponen program perisian termasuklah program dan kod pelaksanaan melalui mikropengawal. Ini adalah pelengkapan dan keseluruhannya, alat pengesan asap ini berfungsi dengan betul dengan cara yang dirancang dan direka bentuknya.