ABSTRAK

SISTEM PENDETEKSI KEBOCORAN TABUNG GAS LPG OTOMATIS BERBASIS ARDUINO UNO MENGGUNAKAN METODE *PROTOTYPE*

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Liquefied Petroleum Gas (LPG) merupakan gas hidrokarbon produksi dari kilang minyak dan kilang gas dengan komponen utama gas propane dan butane dan dikemas di dalam tabung. Salah satu risiko penggunaan LPG adalah terjadinya kebocoran pada tabung atau pipa LPG sehingga jika terkena api maka dapat menyebabkan kebakaran dengan cepat. Sistem pendeteksi kebocoran tabung gas LPG merupakan sebuah sistem untuk pendeteksian kebocoran Gas LPG pada ruangan menggunakan teknologi embedded. Pendeteksi Gas LPG berfungsi untuk memberitahu adanya kebocoran Gas. Dengan adanya alat pendeteksi Gas LPG di harapkan dapat memberikan pencegahan kebakaran pada rumah sehingga memberikan rasa aman tanpa perlu rasa risau ketika meninggalkan rumah. Penelitian ini menggunakan metode *Prototype* yang terdiri dari beberapa tahapan yaitu *Communication, Quick Plan and Modelling Quick Design, Construction of Prototype,* dan *Deployment Delivery and Feedback.* Berdasarkan hasil penelitian, sistem yang dibuat berhasil mendeteksi adanya kebocoran gas LPG dan memberikan tanda kebocoran dengan menampilkan kondisi pada LPG, menghidupkan alarm, dan mengirim SMS. Pengujian menggunakan metode blackbox testing, pengujian software dan hardware yang dilakukan sebanyak 8 pengujian didapatkan hasil 8 pengujian berhasil atau sesuai dengan yang diharapkan.

Kata kunci : Liquefied Petroleum Gas, Embedded Sistem, Prototype, Black-box testing.

ABSTRACT

AUTOMATIC LPG GAS LEAK DETECTION SYSTEM BASED ON ARDUINO UNO USING PROTOTYPE METHOD

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Liquefied Petroleum Gas (LPG) is a hydrocarbon gas produced from oil refineries and gas refineries with the main components being propane and butane gas and packaged in tubes. One of the risks of using LPG is the occurrence of leaks in LPG cylinders or pipes so that if exposed to fire it can cause a fire quickly. LPG gas cylinder leak detection system is a system for detecting LPG gas leaks in the room using embedded technology. LPG Gas Detector serves to notify a gas leak. With the LPG Gas detector, it is hoped that it can provide fire prevention in the house so as to provide a sense of security without the need to worry when leaving the house. This study uses the Prototype method which consists of several stages, namely Communication, Quick Plan and Modeling Quick Design, Construction of Prototype, and Deployment Delivery and Feedback. Based on the results of the study, the system created was successful in detecting LPG gas leaks and providing a leak sign by displaying the condition of the LPG, turning on the alarm, and sending SMS. Testing using the blackbox testing method, software and hardware testing carried out as many as 8 tests obtained the results of 8 successful tests or as expected.

Keywords : Liquefied Petroleum Gas, Embedded Sistem, Prototype, Black-box testing.