

ABSTRAK

Muhammad Afrizal Faraby, 2024, Perancangan Alat Pengawasan Anak Menggunakan Global Positioning System (GPS) pada Tas Ransel Berbasis Internet of Things (IoT), Skripsi, Program Studi: Teknik Elektro, Universitas PGRI Adi Buana Surabaya, Dosen Pembimbing: Atmiasri, S.T., M.T.

Pengawasan terhadap anak merupakan suatu hal yang penting dilakukan untuk perkembangan perilaku dan keamanan anak, khususnya pada anak usia sekolah dasar yang berada di masa kanak-kanak akhir. Masa kanak-kanak akhir merupakan masa anak-anak suka bermain diluar rumah dan memasuki kelompok sebayanya. Adanya kasus disekitar seperti sepulang sekolah tidak langsung pulang ke rumah, membolos sekolah untuk bermain game online, bahkan pada media masa terdapat kasus anak sekolah dasar yang meninggal karena tenggelam di sungai. Hal tersebut menimbulkan kekhawatiran orang tua terhadap anaknya. Di sisi lain ruang orang tua untuk mengawasi anak secara langsung sangat minim karena kegiatannya seperti mengurus rumah atau bekerja, sehingga berinisiatif untuk membuat sebuah alat pelacak atau *GPS Tracker* berkonsep *Internet of Things* (IoT) yang dapat menyelesaikan masalah tersebut. Metode pembuatannya mencakup tiga tahapan, yaitu tahap perancangan, tahap pengujian, dan tahap analisis data agar menghasilkan alat yang diharapkan. Hasil dari penelitian ini yang pertama, *GPS Tracker* dibangun oleh tiga komponen utama (Ardunino Nano, Modul GPS, dan Modul GSM). Kedua, alat berfungsi maksimal saat berada diluar ruangan dengan persentase galat 0% dan kurang maksimal saat didalam ruangan dengan galat 40%. Ketiga alat mampu melacak posisi diberbagai jarak. Keempat, alat memiliki rata-rata daya tahan kerja 4 jam 26 menit dengan sumber daya baterai 3.7 VDC 3500mAH.

Kata Kunci : *Pengawasan, GPS, Internet of Things, Website.*

ABSTRACT

Muhammad Afrizal Faraby, 2024, Design of Child Monitoring Tools Using Global Positioning System (GPS) on Internet of Things (IoT) Based Backpacks, Thesis, Study Program: Electrical Engineering, PGRI Adi Buana University Surabaya, Supervisor: Atmiasri, S.T., M.T.

Supervision of children is something that is important for the development of children's behavior and safety, especially for elementary school age children who are in late childhood. Late childhood is a time when children like to play outside the home and enter their peer group. There are cases around us, such as not going straight home after school, skipping school to play online games, and even in the mass media there are cases of elementary school children who died due to drowning in rivers. This causes parents to worry about their children. On the other hand, parents have very little space to directly supervise their children because of their activities such as taking care of the house or working, so they took the initiative to create a tracking device or GPS Tracker with an Internet of Things (IoT) concept that can solve this problem. The manufacturing method includes three stages, namely the design stage, testing stage, and data analysis stage to produce the expected tool. The first result of this research is that the GPS Tracker is built by three main components (Arduino Nano, GPS Module, and GSM Module). Second, the tool functions optimally when outside with an error percentage of 0% and less than optimally when indoors with an error of 40%. All three tools are capable of tracking positions at various distances. Fourth, the tool has an average working life of 4 hours 26 minutes with a 3.7 VDC 3500mAH battery resource.

Keywords: Surveillance, GPS, Internet of Things, Website.