

Sistem Pendukung Keputusan Penentuan Tanaman Pangan Berdasarkan Karakteristik Lahan Berbasis *IoT* Menggunakan Metode *Fuzzy Multi-Criteria Decision Making*

Decision Support System for Determining Food Crops Based on Land Characteristics Based on IoT Using Fuzzy Multi-Criteria Decision Making Method

Pembimbing (1 orang)

Denny Trias Utomo, S.Si., M.T.

Octavian Yudha Mahendra
Study Program Informatics Engineering
Majoring of Information Technology
Program Studi Teknik Informatika
Jurusan Teknologi Informasi

ABSTRACT

One of the factors that affect the decline in land productivity is the incompatibility of food crop commodities planted on a land. To increase land productivity and help farmers in choosing food crop commodities to be planted on a land, it is necessary to have a Decision Support System (DSS) based on the Internet of Things (IoT) using the Fuzzy Multi-Criteria Decision Making (FMCDM) method, with several criteria of land characteristics, which is average temperature, soil pH, drainage, and soil texture, as well as alternative food crops of rice, corn, and soybeans. The land characteristics criteria will be used as input parameters. Temperature and soil pH are taken using sensors with the concept of Internet of Things. Then the data will be processed in the system and produce a list of recommended crops that are suitable for planting based on the characteristics of the land. The system has been tested using the User Acceptance Testing (UAT) method. After designing, implementing and testing on the website as well as land characteristics detection tools, there are deficiencies in the microcontroller used, resulting in a large difference in the value of the soil pH sensor and the percentage error rate of soil pH, which is the average difference in the value of the soil pH sensor is 1.02 and the average error percentage is 19.91%.

Keywords: *Decision Support System, Food Crops, nternet of Things, Fuzzy MCDM*