

SMART MIRROR DESIGN TOUCHSCREEN BASED ON RASPBERRY PI 4 WITH FACE RECOGNITION FACILITY

FARIZ ADEZULFA

*Program Studi Teknik Elektro, Fakultas Sains & Teknologi
Universitas Teknologi Yogyakarta
Jl. Ringroad Utara Jombor Sleman Yogyakarta
E-mail : fazdarksoul668@gmail.com*

ABSTRACT

The advancement of technology has led to numerous innovations across various facets of daily life, particularly in the realm of smart household devices. Among the most recent innovations is the Smart Mirror, which is defined as a two-way mirror with a screen affixed to the rear of the glass. This screen can display a range of information on its reflective surface, including calendar events, real-time time, and weather forecasts. This study examines the Smart Mirror Touchscreen, which is based on the Raspberry Pi 4 and incorporates facial recognition capabilities. This device merges the traditional functionality of a mirror with contemporary technological advancements. The Smart Mirror is comprised of several key components: the Raspberry Pi 4 serves as the central processing unit, a monitor is utilized to present information, a touchscreen overlay transforms a standard monitor into a touchscreen interface through infrared technology, a camera employs the Eigenfaces method for facial recognition, and an Alexa Smart speaker facilitates music playback. The findings of this study indicate that the Smart Mirror device was successfully developed using the Raspberry Pi 4 as the primary platform. The system can support various essential modules, including precise facial recognition, which enables displaying user-specific information such as photographs and names. The touchscreen interface enhances user interaction, allowing for straightforward control of the device and adjustments to settings, including the ability to power off or restart the system. Furthermore, integrating the device with Amazon Echo Pop and Alexa permits users to issue voice commands, such as playing music via Spotify, with prompt and efficient responses. Additional features, including calendar displays, real-time time, and weather forecasts, function effectively and are supported by regularly updated data from reliable APIs.

Keywords: *Smart Mirror, Raspberry Pi 4, Touchscreen, Face Recognition, Eigenfaces Method.*

