Project Title: IoT-Based Smart Gloves for Disabled People

Introduction:

The "IoT Based Smart Gloves for Disabled People" project aims to provide an innovative

solution to enhance the quality of life for individuals with speech and mobility impairments. The

project integrates flex sensors to detect sign language gestures, enabling communication, home

automation controlled by hand movements, and obstacle detection using ultrasonic sensors to

ensure safe navigation.

Abstract:

The "IoT-Based Smart Gloves for Disabled People" project represents a groundbreaking

endeavor in assistive technology, aimed at significantly improving the lives of individuals with

speech and mobility impairments. This project introduces a comprehensive solution that

encompasses communication, home automation, and safety.

The development of these smart gloves revolves around two primary sensor types: flex sensors

and ultrasonic sensors. The flex sensors, meticulously placed on the fingers of the gloves,

capture the nuanced movements of the hand during sign language gestures. These sensors

convert physical finger bending into electrical signals, which are then processed by a

microcontroller. The microcontroller employs advanced algorithms to translate the flex sensor

data into text or speech output, enabling seamless communication between the user and others.

Beyond communication, these smart gloves extend their utility into the realm of home

automation. Users can control various home devices and appliances through specific hand

movements, granting them newfound independence and convenience. The integration of

actuators and a communication module ensures that these commands are executed accurately and

wirelessly.

Safety is paramount in this project. An ultrasonic sensor mounted on the front of the gloves

continually measures distances to identify obstacles in the user's path. Real-time feedback is

provided to the user to facilitate obstacle avoidance, thereby ensuring safe navigation and

preventing collisions.

The fusion of these technologies results in a holistic solution that empowers disabled individuals

by enhancing communication, fostering independence, and promoting safety. This project has the

potential to transform the lives of countless individuals, making it an innovative and invaluable

addition to the field of assistive technology.