

# Future Technologies in Data Driven Approaches and Adaption

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## Design of grip strength measuring system using FSR and flex sensors using SVM algorithm

This paper proposes a design of a complete system to identify weak grip strength that is caused by multiple factors like ageing, diseases, or accidents. This paper presents a grip measurement system that comprises of force sensing resistor and flex sensor to evaluate the condition of the hand. The system is tested by gripping a pencil and a cylindrical object using the glove, to determine the condition of the hand. Force sensitive resistor (FSR) evaluates the force applied by the different parts of the palm on the object being grasped. Flex sensor evaluates the bending of the fingers and thumb. The data from the sensors is then compared with existing data to evaluate the state of the hand. The data from the sensors is stored on the personal computer (PC) through serial communication. A model is trained using the data from the sensors, which determine if the grip strength of the user is weak or strong. The model is also trained to differentiate between two modes that are pen mode and object mode. The model achieved an accuracy of 90.8 percent using support vector machine (SVM) algorithm. This glove can be deployed in medical centers to assist in grip strength measurement.

### Biography

Dr Soly Mathew Biju is an Associate Professor at the Faculty of Engineering and Information Sciences, University of Wollongong in Dubai. She has a PhD in Computer Science. She has also recently completed her MBA in IT management. She is a Chartered Engineer and also Fellow Higher Education Academy. She is a chartered IT professional and a CITP assessor who conducts interviews for British Computer Society. She is also holds mastery in IBM certified IBM AI analyst, IBM IoT cloud developer, Security Intelligence Engineer, and IBM Cloud application developer.

She also conducts executive IBM training program in Security Intelligence engineer for professionals. She also founded the FEIS technical workshop series at UOWD. She is the university representative at Red Hat Academy and Education Liaison Officer at BCS Middle East Chapter. She has conducted a number of workshops on e-learning, Web CT and Blackboard fro professionals. She has publish various papers in reputed journal and has conducted workshops for various international conferences. She is currently working on various research projects.

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