#### **Nasir Rashid**

#### **Defence Faculty**

College of Electrical & Mechanical Engineering

Email: n.rashid@ceme.nust.edu.pk

Contact: 0512100219

LinkedIn: https://www.linkedin.com/in/dr-nasir-rashid-phd-24217320/



#### **About**

Dr. Nasir Rashid is working as Defence Faculty in the College of Electrical & Mechanical Engineering. Dr. Nasir Rashid has a PhD in Mechatronics Engineering. Dr. Nasir Rashid has published 47 research articles & conference papers having a citation count of 368, carried out 8 projects and filed 8 intellectual property.

#### Qualifications

PhD in Mechatronics Engineering	2013 - 2019
NUST, Islamabad , Pakistan	
IS in Artificial Intelligence And Robotics	2007 - 2010
NUST, Islamabad , Pakistan	
Sc in Mechanical Engineering	1990 - 1993
UET Lahore , Pakistan	
Experience	
Defence Faculty	2009- Present
College of Electrical & Mechanical Engineering	
associate Professor	2010 - 2019
NUST, College of E&ME , Department of Mechatronics Engineering NUST, College of E&ME, Peshawar Road Rawalpindi	
nstructor Class 'C'	1999 - 2002

#### **Awards**

COAS Commendation Card 2018

Remarks by General Qamar Javed Bajwa (COAS) "Your name has been brought into my notice for devotion to duty, selfless dedication and outstanding performance during discharge of duties. I congratulate you on this exemplary display of devotion to duty and pray to Almighty Allah that He may reward you. I have directed that a note to this effect should be made in your record and service/dossier"

Best Teacher Award 2015

#### **Professional Memberships**

PEC

### **Research Projects**

National Projects	
Design and Fabrication Of EMG Based Activation and Proportional Lower LIMB Rehabilitation Device	2025
Funding Agency: IGNITE	
Amount: PKR 72,901.00	
Status: Completed	
Development of a Level-5 Autonomous Ground Vehicle targeted for logistics operation	2023
Funding Agency: NUST	
Amount: PKR 6,322,000.00	
Status: Approved_inprocess	
3-Axis Modular CNC Milling Machine	202
Funding Agency: IGNITE	
Amount: PKR N/A	
Status: Completed	
Indigenous Design and Development of Underwater Glider in the field of Control Systems	202 <sup>-</sup>
Funding Agency: NESCOM	
Amount: PKR 500,000.00	
Status: Completed	
Calay Danal Classing Bahat	2010
Solar Panel Cleaning Robot	2019
Funding Agency: IGNITE Amount: PKR 79,800.00	
Status: Completed	
Human Immune System EEG Classification with implementation on upper limb prosthesis	2018
Funding Agency: IGNITE	
Amount: PKR 70,000.00	
Status: Completed	
Development of RC throw able vehicle with surveillance capability	2018
Funding Agency: IGNITE	
Amount: PKR 70,000.00	
Status: Completed	
Establishment of National Center of Robotics and Automation (Robot Design and Development Lab -	2018
RDDL)	
Funding Agency: HEC	
Amount: PKR 82,506,000.00	
Status: Approved_inprocess	
International Projects	
Research Articles	
InterAcT: A Generic Keypoints-Based Lightweight Transformer Model for Recognition of Human Solo	2025
Actions and Interactions in Aerial Videos	
Mubashir Shah Tahir Habib Nawaz Nasir Rashid Muhammad Osama Ali Rab Nawaz	
PLOS ONE, Volume 20(5), Article Number e0323314	
Impact Factor: 2.900   Quartile: 1	
<b>DOI:</b> https://doi.org/10.1371/journal.pone.0323314	
Emotion Fusion-Sense (Emo Fu-Sense) – A novel multimodal emotion classification technique	2024
Muhammad Umair Nasir Rashid Umar Shahbaz Khan Amir Hamza Javaid Iqbal	
Biomedical Signal Processing and Control, Volume 94, Article Number: 106224	
Impact Factor: 4.9   Quartile: 1	
<b>DOI:</b> 10.1016/j.bspc.2024.1062	
Choletel Koungint Dogget Transformer Model for University Assign Decompilion in Assign Wilder	000
Skeletal Keypoint-Based Transformer Model for Human Action Recognition in Aerial Videos	2024
Shahab Uddin Tahir Habib Nawaz James Ferryman Nasir Rashid MD Asaduzzaman Raheel Nawaz	
IEEE Access, Volume: 12, Page(s): 11095-11103	
Impact Factor: 3.9   Quartile: 2   Citations: 7	
<b>DOI:</b> 10.1109/ACCESS.2024.3354389	

classification algorithm

Rabia Avais Khan Nasir Rashid Muhammad Shahzaib Umar Farooq Malik Arshia Arif Javaid Iqbal M Mubasher Saleem Umar Shahbaz Khan Mohsin Islam

Tiwana

PLOS ONE, Volume 18(9), Article Number e0276133

Impact Factor: 3.7 | Quartile: 2 | Citations: 7 **DOI:** https://doi.org/10.1371/journal.pone.0276133

#### Multi-criteria Handoff Decision making Algorithm for Seamless Mobility in Heterogenous Wireless

2023

#### Networks

Muhammad Wajid Khan Umar Shahbaz Khan Muhammad Mubasher Saleem Nasir Rashid

Journal of Communications, Volume 18, Issue 3, Pages 164-171

Impact Factor: N/A | Citations: 4 DOI: 10.12720/jcm.18.3.164-171

#### IoT-Based Non-Intrusive Automated Driver Drowsiness Monitoring Framework for Logistics and Public

2023

#### Transport Applications to Enhance Road Safety

Muhammad Adil Khan Tahir Habib Nawaz Umar Shahbaz Khan Amir Hamza Nasir Rashid

IEEE Access , Volume 11, Pages 14385-14397

Impact Factor: 3.476 | Quartile: 2 | Citations: 44

DOI: https://doi.org/10.1109/ACCESS.2023.3244008

#### Patch-wise weed coarse segmentation mask from aerial imagery of sesame crop

2022

Syed Imran Moazzam Umar Shahbaz Khan Waqar Shahid Qureshi Mohsin Islam Tiwana Nasir Rashid Ameer Hamza Kunwar Faraz Ahmed Tahir Habib Nawaz

Computers and electronics in agriculture, Volume 203, Article Number 107458

Impact Factor: 6.757 | Quartile: 1 | Citations: 12 DOI: https://doi.org/10.1016/j.compag.2022.107458

#### A new method for pixel classification for rice variety identification using spectral and time series data

2022

#### from Sentinel-2 satellite imagery

Usman Rauf Waqar Shahid Qureshi Hamid Jabbar Ayesha Zeb Alina Mirza Eisa Alanazi Umar Shahbaz Khan Nasir Rashid

Computers and electronics in agriculture, Volume 193, Article Number 106731

Impact Factor: 5.565 | Quartile: 1 | Citations: 16
DOI: https://doi.org/10.1016/j.compag.2022.106731

#### A Patch-Image Based Classification Approach for Detection of Weeds in Sugar Beet Crop

2021

Syed Imran Muazzam Umar Shahbaz Khan Waqar Shahid Qureshi Mohsin Islam Tiwana Nasir Rashid Waleed S. Alasmary Javaid Iqbal Ameer Hamza

IEEE Access, Volume 9, Pages 121698-121715
Impact Factor: 3.476 | Quartile: 2 | Citations: 39

DOI: 10.1109/ACCESS.2021.3109015

#### Analysis of visual features and classifiers for Fruit classification problem

2021

Sumaira Gahzal Waqar Shahid Qureshi Umar Shahbaz Khan Javaid Iqbal Nasir Rashid Mohsin Islam Tiwana

Computers and Electronics in Agriculture, Volume 187, Article Number 106267

Impact Factor: 6.757 | Quartile: 1 | Citations: 64 **DOI:** https://doi.org/10.1016/j.compag.2021.106267

#### Advancements, Trends and Future Prospects of Lower Limb Prosthesis

2021

Muhammad Asif Mohsin Islam Tiwana Umar Shahbaz Khan Waqar Shahid Qureshi Javaid Iqbal Nasir Rashid Noman Naseer

*IEEE Access*, Volume 9, Pages 85956-85977 **Impact Factor:** 3.476 | **Quartile:** 2 | **Citations:** 56 **DOI:** 10.1109/ACCESS.2021.3086807

#### 2011 10.1100//1002000/

2021

#### Coefficients (MFCC)

Umar Shahbaz Khan Ameer Hamza Umer Izhar Javaid Iqbal Nasir Rashid Waqar Shahid Qureshi Mohsin Islam Tiwana Muhammad Saad Bin Abdul Ghaffar Infrared Physics and Technology, Volume 112, Article Number 103589

Impact Factor: 2.638 | Quartile: 2 | Citations: 32 DOI: https://doi.org/10.1016/j.infrared.2020.103589

# EEG Based Four Class Human Limb Movement Detection by Mel Frequency Cepstral Coefficients and

Improving Classification Performance of Four Class FNIRS-BCI Using Mel Frequency Cepstral

2020

#### **Quadratic Multi-Class Support Vector Machine**

Nasir Rashid Javaid Iqbal Umar Shahbaz Khan Mohsin Islam Tiwana Amir Hamza Journal of Engineering and Applied Sciences, Volume 39, Issue 1, Pages 116-126 Impact Factor: -

DOI: http://dx.doi.org/10.17582/journal.jeas/39.1.116.126

Human Activity Recognition using 2D Skeleton Data and Supervised Machine Learning

Umar Shahbaz Khan Javaid Iqbal Nasir Rashid Muhammad Mubasher Saleem Sumaira Ghazal

IET Image Processing, Volume: 13, Issue: 13, Pages: 2572-2578

Impact Factor: 1.995 | Quartile: 3 | Citations: 40

DOI: 10.1049/iet-ipr.2019.0030

Artificial Immune System - Negative Selection Classification Algorithm (NSCA) for Four Class

2018

2019

Electroencephalogram (EEG) Signals

Nasir Rashid Javaid Iqbal Fahad Mahmood Anam Abid Umar Shahbaz Khan Mohsin I. Tiwana

Frontiers in Human Neuroscience, Volume: 12 Article Number: 439

Impact Factor: 2.870 | Quartile: 2 | Citations: 22

DOI: 10.3389/fnhum.2018.00439

Design of Embedded System for Multivariate Classification of Finger and Thumb Movements Using

2018

**EEG Signals for Control of Upper Limb Prosthesis** 

Amna Javed Mohsin Islam Tiwana Umar Shahbaz Khan Javaid Iqbal Nasir Rashid BioMed Research International, Volume 2018, Article ID 2695106, 11 pages

Impact Factor: 2.197 | Quartile: 3 | Citations: 16

DOI: 10.1155/2018/2695106

Efficient FIR Filter Implementations for Multichannel BCIs Using Xilinx System Generator

2018

Usman Ghani Muhammad Wasim Umar Shahbaz Khan Muhammad Mubasher Saleem Ali Hassan Nasir Rashid Mohsin Islam Tiwana Amir Hamza Amir Kashif

BioMed Research International, Volume 2018, Article ID 9861350, 9 pages

**Impact Factor:** 2.197 | **Quartile:** 3 | **Citations:** 6 **DOI:** https://doi.org/10.1155/2018/9861350

Recognition of finger movements using EEG signals for control of upper limb prosthesis using logistic

2017

regression

Amna Javed Mohsin Tiwana Moazzam Islam Tiwana Nasir Rashid Javaid Iqbal Umar Shahbaz Khan

Biomedical Research-India, Volume 28, Issue 17, Pages 7361-7369

Impact Factor: -

**DOI:** http://www.biomedres.info/biomedical-research/recognition-of-finger-movements-using-eeg-signals-for-control-of-upper-limb-prosthesis-using-logistic-regression-8334.html

Kinematic and Energy Analysis of Single Axis Solar Panel Tracker System (A Comparative Study)

2013

Muhammad Arif Javaid Iqbal Nasir Rashid Umer Izhar

Journal of Emerging Trends in Engineering and Applied Sciences, Vol 4, No 1, Pages 24-29

Impact Factor: 0

DOI: -

**Conference Proceedings** 

Impact Testing of Different Materials on Wheels Used in Throwable Unmanned Ground Vehicles

2024

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2nd International Conference on Modern Technologies in Mechanical & Materials Engineering (MTME-2024), res.country(177,)

Citations: N/A

DOI: https://doi.org/10.1051/matecconf/202439801014

Optimization of Impact Resistant Throwable Unmanned Ground Vehicle Using Mathematical Modeling

2024

**Techniques** 

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2nd International Conference on Modern Technologies in Mechanical & Materials Engineering (MTME-2024), res.country(177,)

Citations: N/A

DOI: 10.1051/matecconf/202439801013

**Design and Analysis of Throwable Unmanned Ground Vehicle** 

2023

Hamza Sohail Amir Hamza Nasir Rashid Muhammad Saad Ali Taha Ghani

2023 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI57502.2023.10089612

#### Deep Learning-based Feature Fusion for Action Recognition Using Skeleton Information

Fahad Ul Hassan Asif Mattoo Umar Shahbaz Khan Tahir Habib Nawaz Nasir Rashid

2023 International Conference on Robotics and Automation in Industry, ICRAI 2023, res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI57502.2023.10089577

#### Characterization of Motor Imagery based EEG signals with Hilbert Transform

2021

2023

Umar Farooq Malik Nasir Rashid Rabia Awais Khan Muhammad Shahzaib Arshia Arif Ayesha Zeb

2021 International Conference on Robotics and Automation in Industry (ICRAI), res.country(282,)

Citations: N/A

DOI: 10.1109/ICRAI54018.2021.9651412

#### Improved Classification Accuracy of Four Class FNIRS-BCI

2020

Muhammad Saad Bin Abdul Ghaffar Noman Naseer Umar Shahbaz Khan Nasir Rashid Mohsin Islam Tiwana 12th International Conference on Electronics, Computers and Artificial Intelligence (ECAI), res.country(188,)

Citations: N/A

DOI: 10.1109/ECAI50035.2020.9223258

#### Motor Imagery based Multivariate EEG Signal Classification for Brain Controlled Interface Applications

2019

Fatima Farooq Nasir Rashid Amber Farooq Muzamil Ahmed Ayesha Zeb Javaid Iqbal Fatima Farooq Nasir Rashid Amber Farooq Muzamil Ahmed Ayesha Zeb Javaid Iqbal Fatima Farooq Nasir Rashid Amber Farooq Muzamil Ahmed Ayesha Zeb Javaid Iqbal

7th International Conference on Mechatronics Engineering (ICOM) (pp. 1-6). IEEE, 2019, res.country(157,)

Citations: N/A

**DOI:** DOI: 10.1109/ICOM47790.2019.8952008

## Development of NI my-RIO Based Control Module for Versatile Terrain Autonomous Mobility Platform

2019

(VTAMP)

Abubakar Siddique Abdullah Afridi Qazi Umer Jamil Dr Mohsin Islam Tiwana Hashim Akram Muhammad Umar Masood Dr Nasir Rashid Dr Javaid Iqbal 2019 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

DOI: 10.1109/ICRAI47710.2019.8967352

#### Power Line Interference Cancellation from EEG Signals using RLS Algorithm

2019

Muzammil Ahmed Amber Farooq Fatima Farooq Nasir Rashid Ayesha Zeb Muzammil Ahmed Amber Farooq Fatima Farooq Nasir Rashid Ayesha Zeb Muzammil Ahmed Amber Farooq Fatima Farooq

2019 International Conference on Robotics and Automation in Industry (ICRAI), res.country(177,)

Citations: N/A

**DOI:** 10.1109/ICRAI47710.2019.8967392

#### Unorthodox Approach to Classify EEG Signals for Upper Limb Prosthesis Application

2018

Nasir Rashid Fahad Mahmood Javaid Iqbal

18th International Conference on Control, Automation and Systems (ICCAS 2018), res.country(121,)

Citations: N/A

DOI:

https://www.researchgate.net/profile/Nasir\_Rashid4/publication/330015114\_Unorthodox\_Approach\_to\_Classify\_EEG\_Signals\_for\_Upper\_Limb\_Prosthesis\_Application/links/5c2a0a1092851c22a350baae/Unorthodox-Approach-to-Classify-EEG-Signals-for-Upper-Limb-Prosthesis-Application.pdf

# Design and Experimental Testing of an In-Parallel Actuated 3 DOF Serial Robotic Manipulator for Unmanned Ground Vehicle

2018

Muhammad Umar Masood Muhammad Mujtaba Muhammad Ahsan Sami Nasir Rashid Javaid Iqbal 2018 3rd Asia-Pacific Conference on Intelligent Robot Systems (ACIRS), res.country(197,)

Citations: N/A

DOI: 10.1109/ACIRS.2018.8467220

### Comparative Analysis of EMG Signal Features in Time-domain and Frequency-domain using MYO

2018

**Gesture Control** 

Haider Ali Javaid Nasir Rashid Mohsin Islam Tiwana Muhammad Waseem Anwar

4th International Conference on Mechatronics and Robotics Engineering held from 07-11 Feb 2018 in France, res.country(75,)

Citations: N/A

DOI: 10.1145/3191477.3191481

# Object tracking with a robotic manipulator mounted on ground vehicle using Image Based Visual

2017

#### Servoin

Muhammad Ahsan Sami Muhammad Umar Masood Muhammad Waqar Muhammad Mujtaba Abrahim Ali Shah Adnan Shujah Nasir Rashid Mohsin I. Tiwana Javaid labal Citations: N/A

DOI: 10.23919/ICCAS.2017.8204442

#### Design and development of a semi-autonomous stair climbing robotic platform for rough terrains

2017

Nasir Rashid Muhammad Umar Masood Muhammad Ahsan Sami Haris Sohail Muhammad Mujtaba Muhammad Abubakar Siddique Hashir Akram Nasir Rashid Mohsin I. Tiwana Javaid Iqbal

17th International Conference on Control, Automation and Systems (ICCAS), res.country(121,)

Citations: N/A

DOI: 10.23919/ICCAS.2017.8204443

### Design of a novel Simulink model for surface electromyographic (SEMG) sensor design for prosthesis

2015

Javaid Iqbal Mohsin Islam Tiwana Afzaal Ahmad Nasir Rashid Asad Ullah Awan

2015 IEEE Student Symposium in Biomedical Engineering & Sciences (ISSBES), res.country(157,)

Citations: N/A

DOI: 10.1109/ISSBES.2015.7435917

#### Inverse Kinematics Control of Redundant Planar Manipulator with Joint Using Numerical Method

2015

Mohsin Islam Tiwana Nasir Rashid Javaid Iqbal Raabid Hussain Asim Qureshi Rasheeq A. Mughal Raafay ijaz

2015 15th International Conference on Control, Automation and Systems (ICCAS), res.country(121,)

Citations: N/A

DOI: 10.1109/ICCAS.2015.7364731

## Development of FPGA-based System for Control of an Unmanned Ground Vehicle with 5-DOF Robotic

2015

Nasir Rashid Mohsin islam tiwana Javaid Iqbal Muhammad Umar Masood Abdullah Afaq Mohammad Ahmed Ahmed Kama1 Muhammad Shahzaib

2015 15th International Conference on Control, Automation and Systems (ICCAS), res.country(121,)

Citations: N/A

DOI: 10.1109/ICCAS.2015.7365015

#### Inverse Kinematics Control of Redundant Planar Manipulator with Joint Constraints using Numerical Method

2015

Raabid Hussain Asim Qureshi Rasheeq A Raabid Hussain Asim Qureshi Rasheeq A Nasir Rashid Mohsin Islam Tiwana Javaid Iqbal 15th International Conference on Control, Automaton and Systems held from 13-16 Oct 2015 in Korea, res.country(121,)

Citations: N/A

DOI: https://ieeexplore.ieee.org/document/7364731

#### Stair Case Perception Using MonoScopic Vision for a Teleoperated vehicle

2015

Nasir Rashid Javaid Iqbal Mohsin Islam Tiwana Asim Qureshi Raabid Hussain Rasheeq Ali Raafay Ijaz 2015 Signal Processing: Algorithms, Architectures, Arrangements, and Applications (SPA), res.country(178,)

Citations: N/A

DOI: 10.1109/SPA.2015.7365155

## Articulated design architecture and open-loop command and control system for tele-operated Versatile

2015

**Terrain Mobility Platform** 

Mohsin I. Tiwana Javaid Iqbal Nasir Rasid Raabid Hussain Raafay Ijaz Rasheeq A. Mughal Asim Qureshi 2015 International Symposium on Innovations in Intelligent SysTems and Applications (INISTA), res.country(68,)

Citations: N/A

DOI: 10.1109/INISTA.2015.7276749

#### Development of a Low-Cost Anthropomorphic Manipulator for Commercial Usage

2015

Mohsin Islam Tiwana Javaid Iqbal Nasir Rashid Razeen Hussain Mustafa A. Shahid Jibran A. Khan

2015 International Symposium on Innovations in Intelligent SysTems and Applications (INISTA), res.country(68,)

Citations: N/A

DOI: 10.1109/INISTA.2015.7276750

# Articulated design architecture and open-loop command and control system for a tele-operated

2015

**Versatile Terrain Mobility Platform** 

Raabid Hussain Raafay Ijaz Rasheeq Ali Nasir Rashid Mohsin Islam Tiwana Javaid Iqbal

International Symposium on Innovations in Intelligent SysTems and Applications held from 2-4 Sep 2015 in Madrid, Spain, res.country(68,)

Citations: N/A

DOI: -

Evaluation of LDA, QDA and decision trees for multifunctional controlled below elbow prosthetic limb using EMG signals	2014
Fateh Muhammad Hafsah Akhtar Zarmina Muhammad Syed Omer Gilani Umar Ansari Nasir Rashid 2014 International Conference on Robotics and Emerging Allied Technologies in Engineering (iCREATE), res.country(177,) Citations: 3 DOI: 10.1109/iCREATE.2014.6828350	
Development of an On-board Diagnostic (OBD) Kit for Troubleshooting of Compliant Vehicles  Nasir Rashid M Awais Khan Niazi Anique Nayyar Aii Raza Asad Ullah Awan Muhammad Hamid Ali Javaid Iqbal  2013 IEEE 9th International Conference on Emerging Technologies (ICET), res.country(177,)  Citations: N/A  DOI: 10.1109/ICET.2013.6743551	2013
Evaluation of ANN, LDA and Decision Trees for EEG Based Brain Computer Interface  Nasir Rashid Javaid Iqbal Asif Ishfaque Ahsan Javed Awan  2013 IEEE 9th International Conference on Emerging Technologies (ICET), res.country(177,)  Citations: N/A  DOI: 10.1109/ICET.2013.6743513	2013
Design of Low Cost And Portable EMG Circuitry For Use in Active Prosthesis Applications  Javaid Iqbal Nasir Rashid M.Hamza Khan Ali Wajdan Muhammad Khan Haider Ali UMAR SHAHBAZ KHAN  2012 International Conference of Robotics and Artificial Intelligence, res.country(177,)  Citations: N/A  DOI: 10.1109/ICRAI.2012.6413389	2012
Design of Non-Conventional Chain Drive Mechanism for a Mini-Robot  Umar Shahbaz Khan Javaid Iqbal Nasir Rashid M.A.Khan Sohail Anjum Nabeel Kamal Umar Izhar  2012 International Conference on Robotics and Artificial Intelligence, ICRAI 2012, res.country(177,)  Citations: N/A  DOI: 10.1109/ICRAI.2012.6413403	2012
Optimized circuit for EMG signal processing  Umar Shahbaz Khan Javaid Iqbal Nasir Rashid Ali Salman Umer Izhar  2012 International Conference of Robotics and Artificial Intelligence, res.country(177,)  Citations: N/A  DOI: 10.1109/ICRAI.2012.6413390	2012
Editorial Activities	
Actuators Reviewed Papers for Journals Impact Factor: N/A	2021
IEEE Access Reviewed Papers for Journals Impact Factor: 3.367	2021

### **Intellectual Property**

**Trademarks** 

Copyrights	
Unmanned Ground Vehicle TREC Operating Software Status: Filed	2020
IED Disposal Tracked Robot Operating Software Status: Filed	2020
Patents	
Torque Asjustable Coupling for Hand Prosthesis Status: Filed	2016
Industrial Designs	
Tri-Blade Impact-based motorized Deminer (class-01) Status: Filed	2022
Flexible Mobile Automated Guided Vehicle Platform	2021
Status: Filed	
Defender Diagnostic Scanner Pakistan Status: Filed	2021
1 DoF (Degree of Freedom) upper limb Prosthetic gripper Status: Filed	2019
1 DoF (Degree of Freedom) upper limb prosthetic gripper Status: Filed	2019