

TEAM 10 | 20-12-2022

SIP

ZEROTH REVIEW

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BASE PAPER

Signal, Image and Video Processing (2022) 16:2037–2043
<https://doi.org/10.1007/s11760-022-02165-8>

ORIGINAL PAPER



An integration of features for person identification based on the PQRST fragments of ECG signals

Sihem Hamza¹ · Yassine Ben Ayed¹

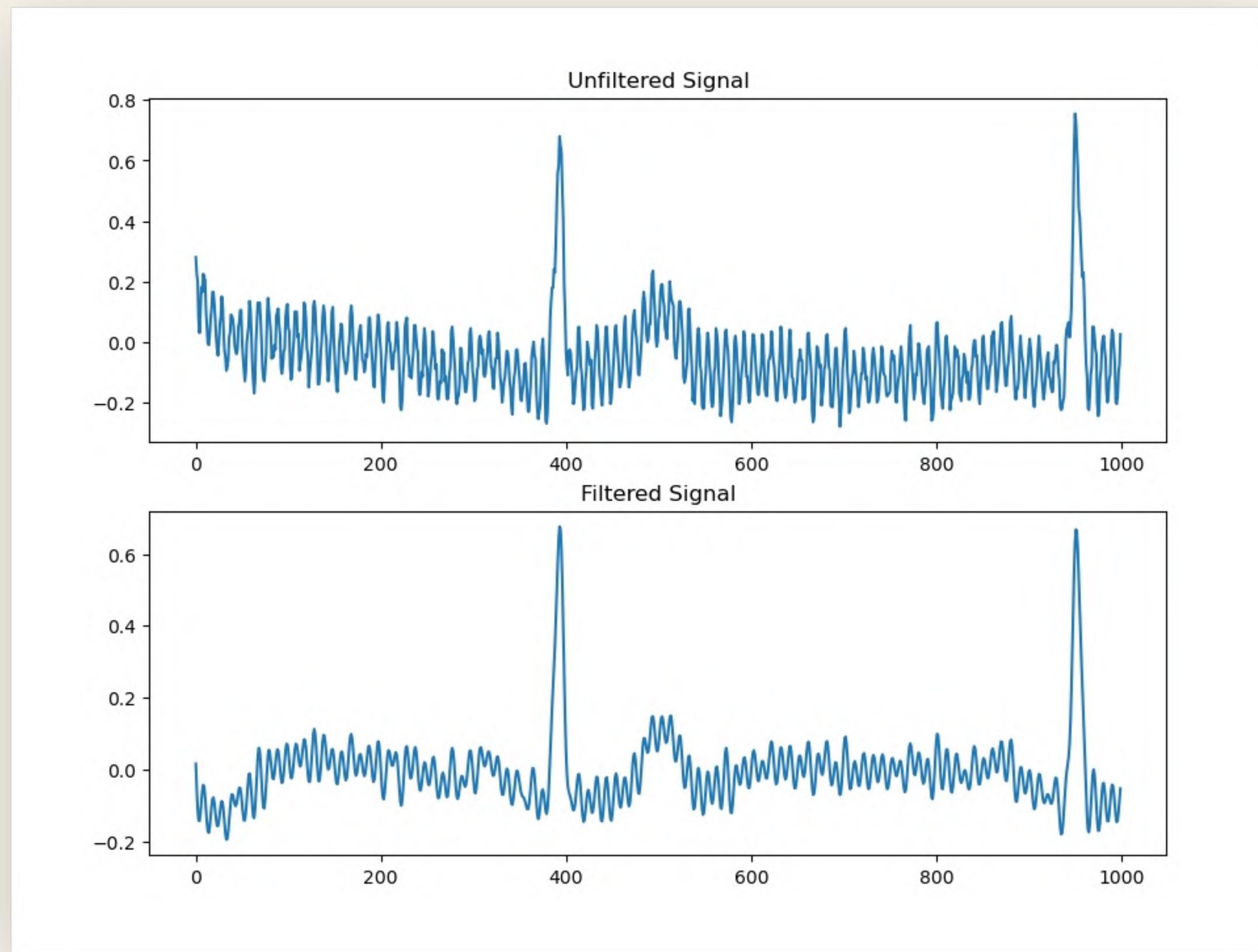
PRE PROCESSING

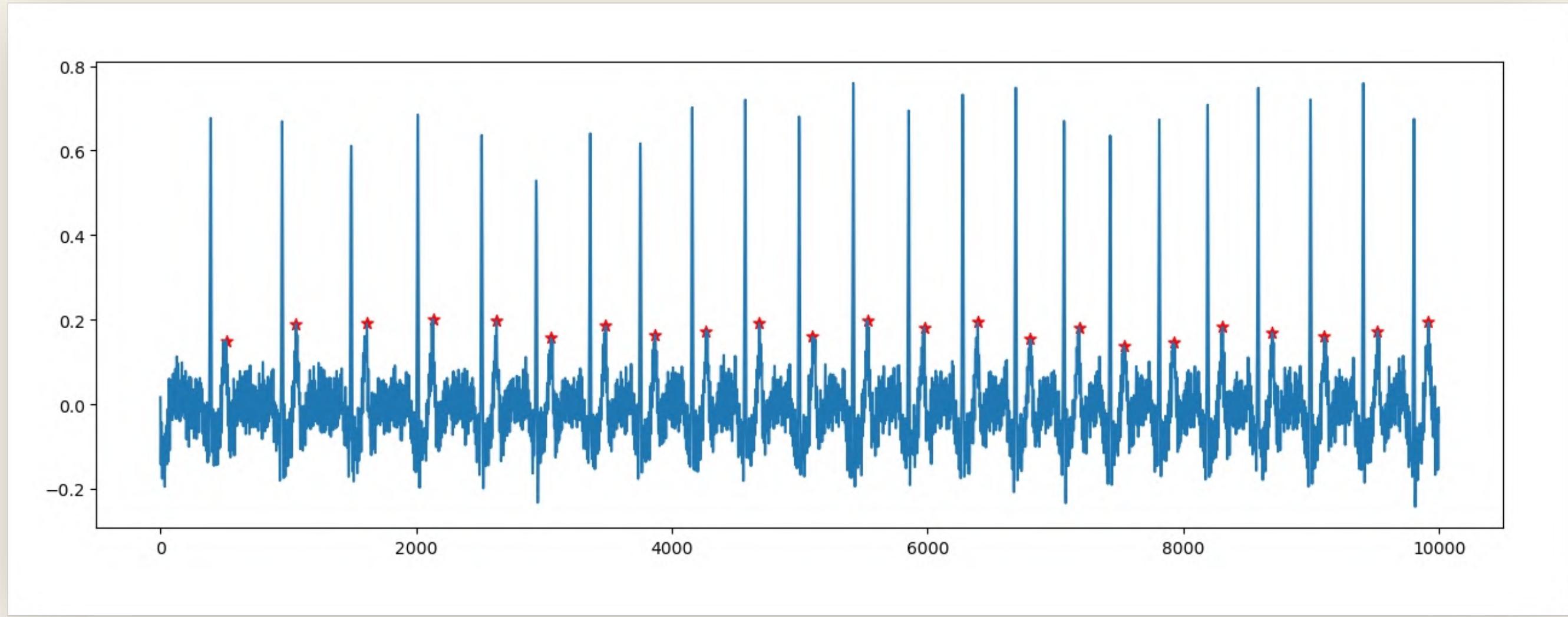
FEATURE EXTRACTION

MODEL TRAINING

SECTION 02 -

IMPLEMENTATION





CEPSTRAL
COEFFICIENTS

ENTROPY

ZERO CROSSING RATE

SECTION 03 -

LITERATURE SEARCH

ECG IDENTIFICATION SYSTEM USING NEURAL NETWORK WITH GLOBAL AND LOCAL FEATURES

Kuo-Kun Tseng¹, Dachao Lee¹ and Charles Chen²

¹*Department of Computer Science and Technology, Harbin Institute of Technology, Shenzhen Graduate School, Shenzhen, China*

²*School of Information Technology, Beijing Institute of Technology, Zhuhai, China*

Features Extracted

- 1.** Average R-R Interval (Global)
- 2.** Statistical Counting and Ranking of binary patterns (Local Statistical Feature)

Methodology

Using the Global Feature to classify the Signal majorly and using the Local feature (which is dependent on the Global Feature) to future classify

Algorithm

Hierarchical classification

Performance

97.6% Accuracy on Average

Features Extracted

1. Difference of Amplitude Consecutive Peaks
2. Angle Features(PQR,QRS,RST)
3. R-R Time Interval
4. Various Other Interval Features



International Journal of Computer Science & Communication Vol. 1, No. 2, July-December 2010, pp. 281-283

ECG as Biometric in the Automated World

Sunil Kumar Singla¹ & Ankit Sharma²

Methodology

Combination of These various features can help us act as a biometric

Algorithm

Basic Denoising/Preprocessing by removing Baseline Wander and Wideband Noise

Features Extracted

1. Hermit function coefficient
2. Temporal features

Methodology

A new personalized ECG signal classification algorithm using
Block-based Neural Network and Particle Swarm Optimization
Shirin Shadmand*, Behbood Mashoufi

Department of Electrical Engineering, Urmia University, Urmia, West Azerbaijan, Iran



Feeding the obtained features as input vector for
BBNN which is then optimised by PSO

Algorithm

Block based Neural Network and Particle Swarm
Optimization

Performance

97% Accuracy

Biometric Identification from Raw ECG Signal Using Deep Learning Techniques

Lukasz Wieclaw¹, Yuriy Khoma², Paweł Falat¹, Dmytro Sabodashko², Veronika Herasymenko²

Features Extracted

Just raw ECG signal(one Cycle)

Methodology

Direct comparison with what is present in the dataset already.

Algorithm

deep feedforward neural network

Performance

Approximately ~90%

SECTION 04 -

EXTENSION

Extension

One of the important step in the analysis is preprocessing. Here we use filtering technique to remove the noise of the ECG signal. After filtering, the algorithm of T peaks detection is implemented for realizing the segmentation.

We can use any filter for this here versality of the filters allows them to be used in numerous ways, such as isolating a QRS complex in an ECG or to eliminate aliasing artifacts.

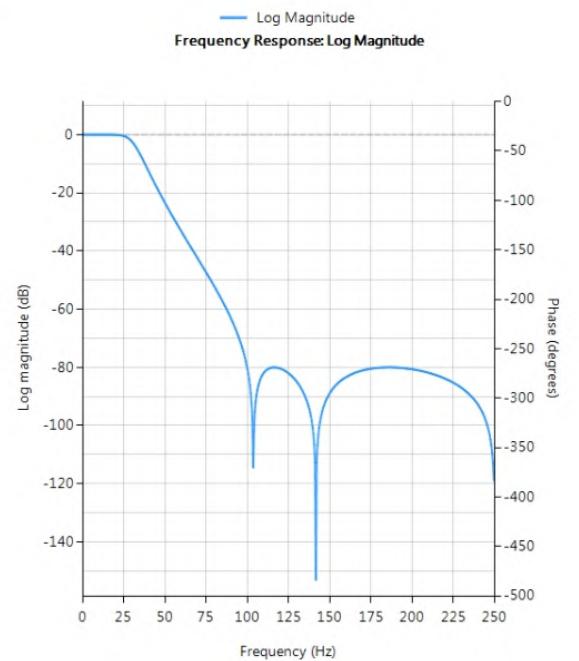
The different noise interferences are present in the Unfiltered ECG signal. In the Paper instead of using filter using hardware for the noise removal the digital filter has been suggested

Currently it uses Butterworth filter as the bandpass filter.

Chebyshev Type II filter

Chebyshev Type II

Chebyshev Type II filters are monotonic in the passband and equiripple in the stopband making them a good choice for bridge sensor applications. Although filters designed using the Type II method are slower to roll-off than those designed with the Chebyshev Type I method, the roll-off is faster than those designed with the Butterworth method.



See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/236342153>

Application of the Chebyshev type II digital filter for noise reduction in ECG signal

Conference Paper in *WSEAS Transactions on Circuits and Systems* · October 2005

CITATIONS
7

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Kolhapur Institute Of Technology's College Of Engineering
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 Mahadev Dattatraya Upadhye
Savitribai Phule Pune University
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Some of the authors of this publication are also working on these related projects:

 VLSI based Induction Motor Speed Control using Auto Tune PID controller [View project](#)

SECTION 05 -

Highlights