Web based Power Plants Vibration Diagnosis System

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Titles

Introduction

VCM is a system that analyze vibration signal from Horizontal, Vertical and axial sensors installed in rotating machinery in powerplants

And give us some monitoring tools like time wave plot, trend plot, FFT plot, Shaft orbit, Bode plot, and etc. Vibration signals also fed to MLP neural network that analyze data and detects some machine faults such as Shaft unbalanc
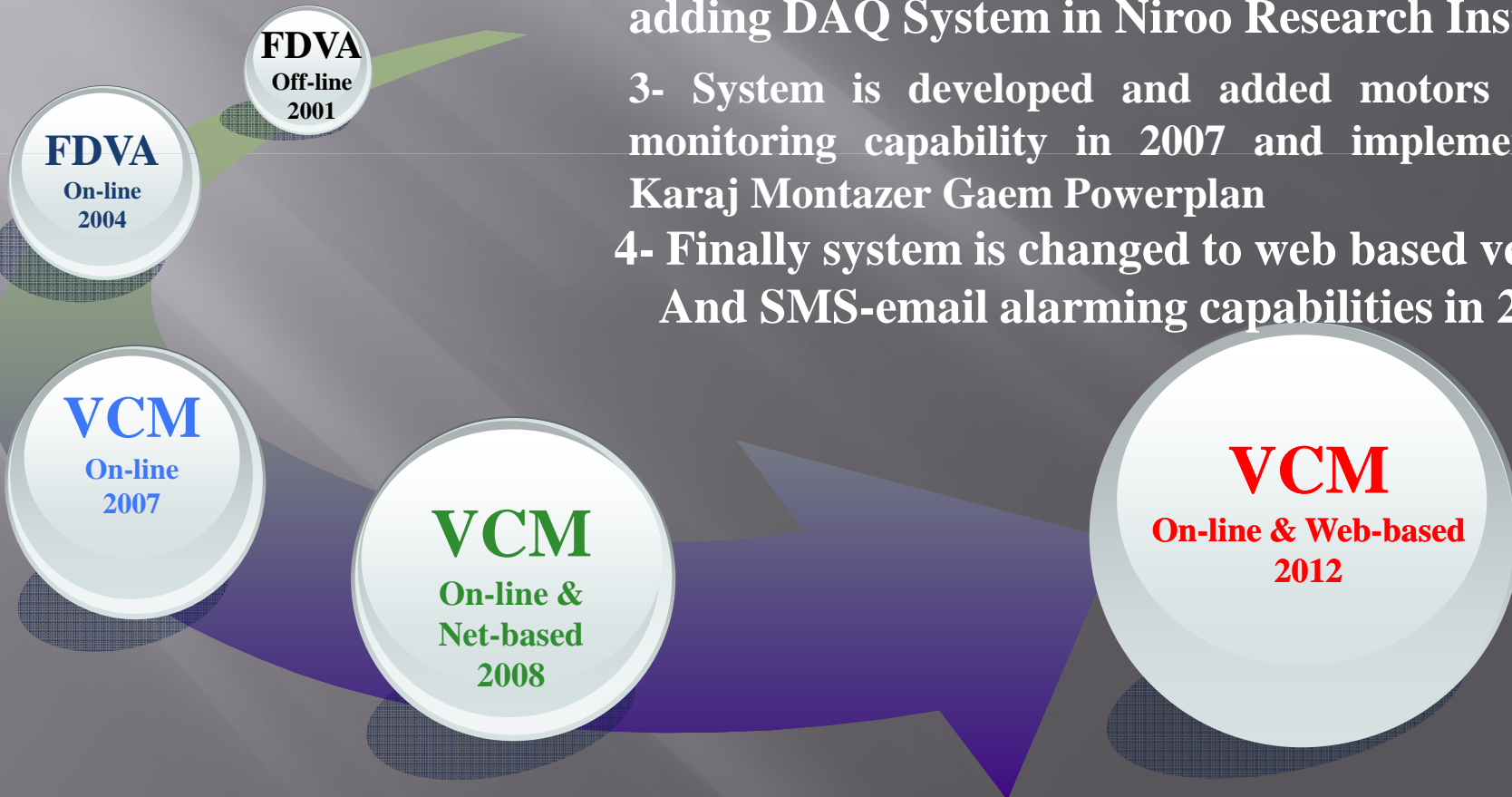
Project History

1-System Started with a simple vibration analysis In 2001 in AHWAZ Ramin Power Plant
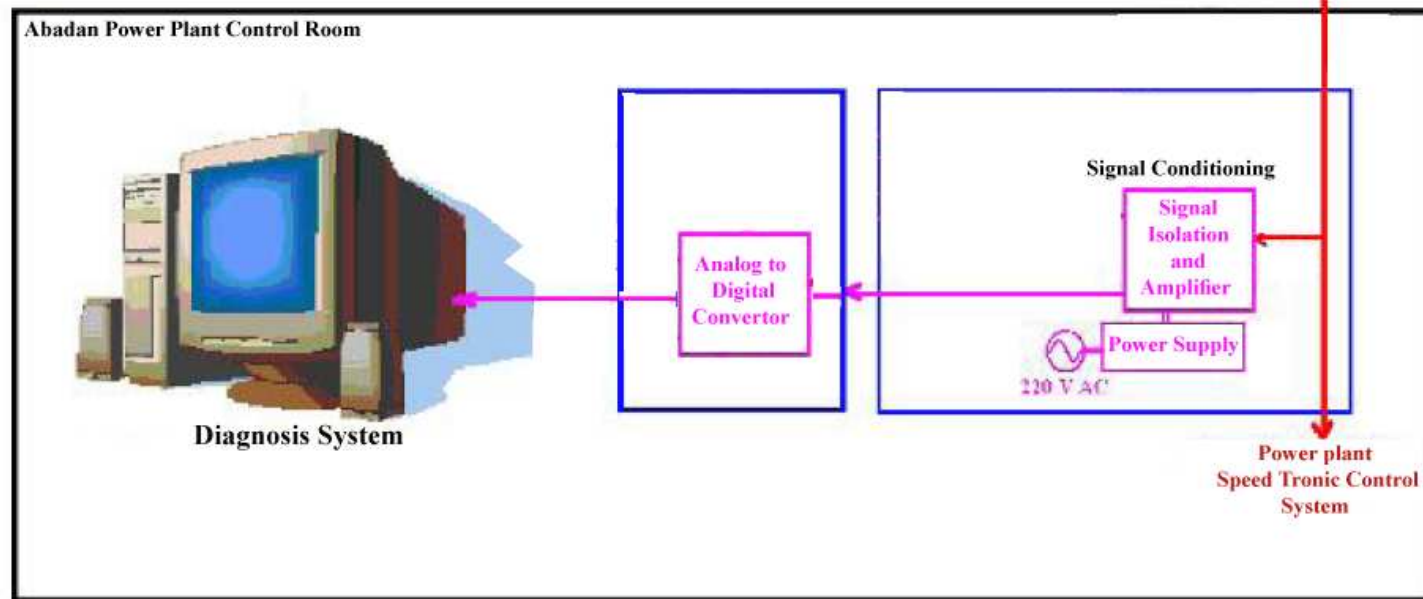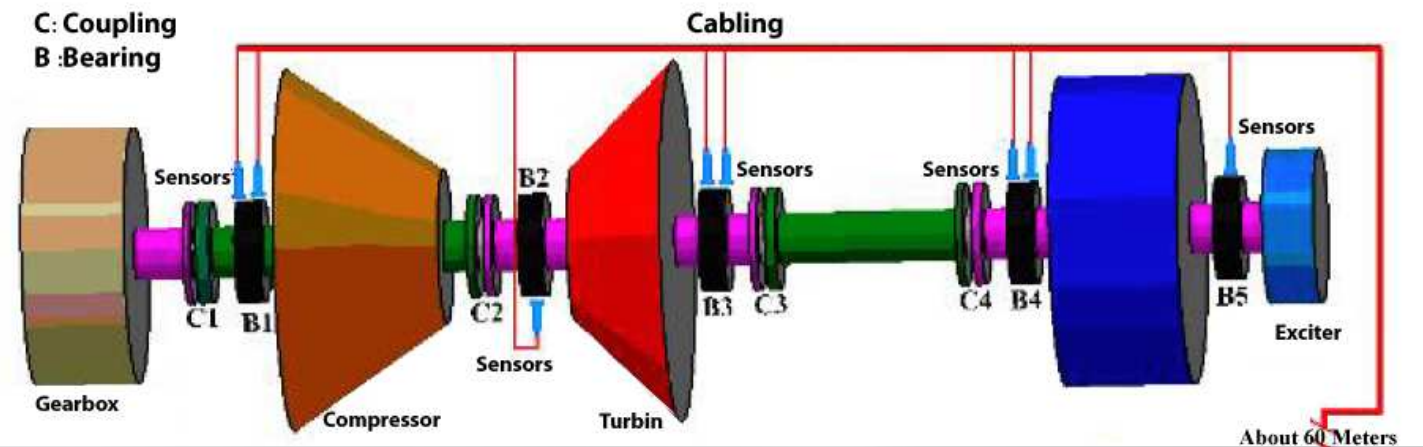
2- System is changed to online application in 2004 adding DAQ System in Niroo Research Institute

3- System is developed and added motors current monitoring capability in 2007 and implemented in Karaj Montazer Gaem Powerplan

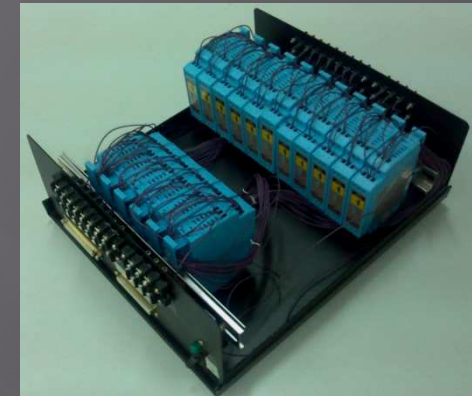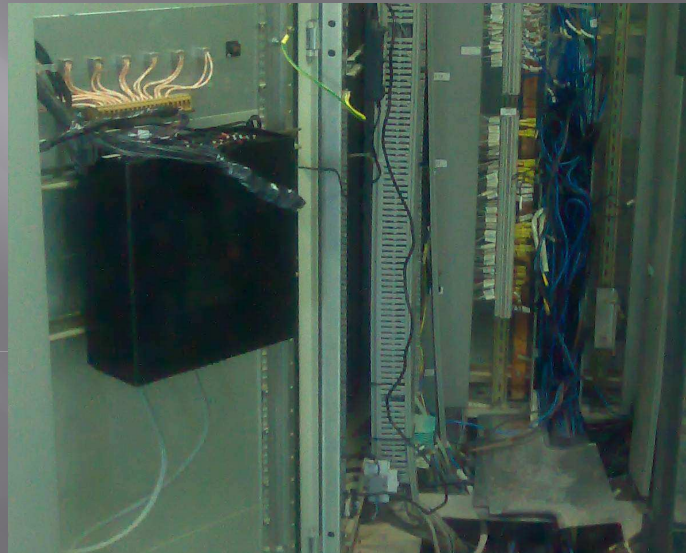**4- Finally system is changed to web based version And SMS-email alarming capabilities in 2012**

FDVA
Off-line
2001

FDVA
On-line
2004

VCM
On-line
2007

VCM
On-line &
Net-based
2008

VCM
On-line & Web-based
2012

4

System Application Schematic

VCM Hardware's

Isolator Packs

A/D Cards

PCL-10168

ADAM-3968
68-pin SCSI-II Wiring Terminal for DIN-rail Mounting

PowerPlant Machines Definition
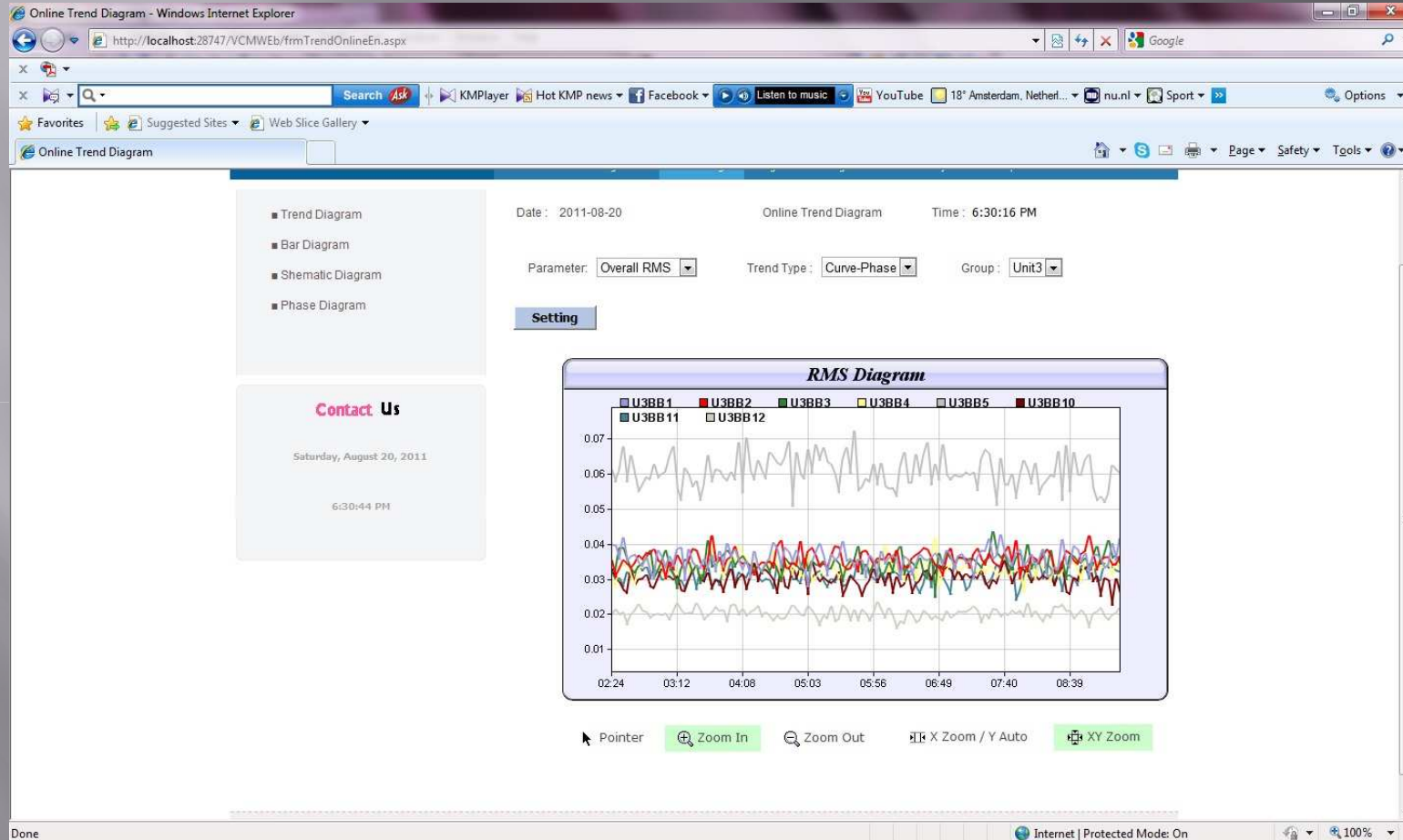
Trend Diagram of ABADAN GAS PowerPlant machines
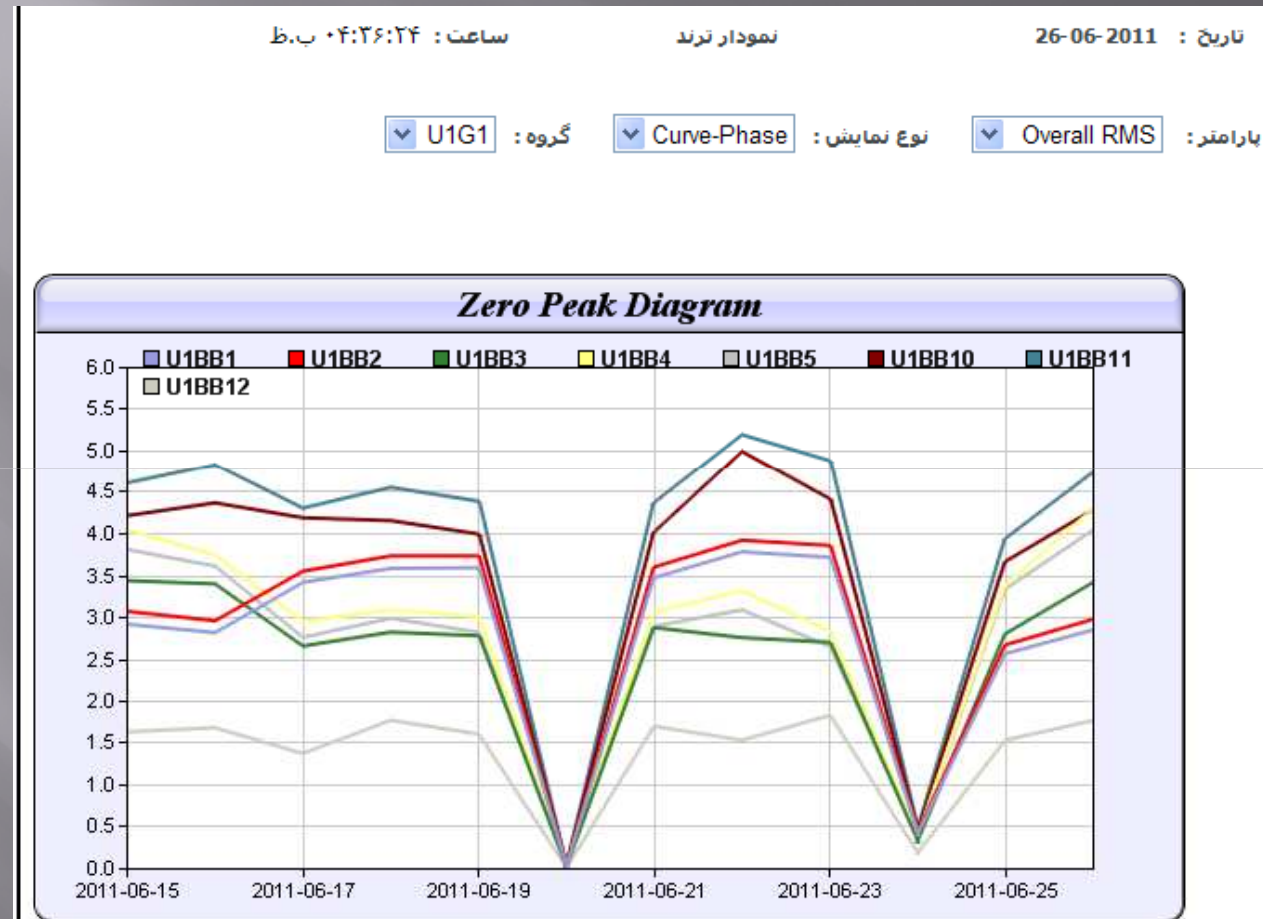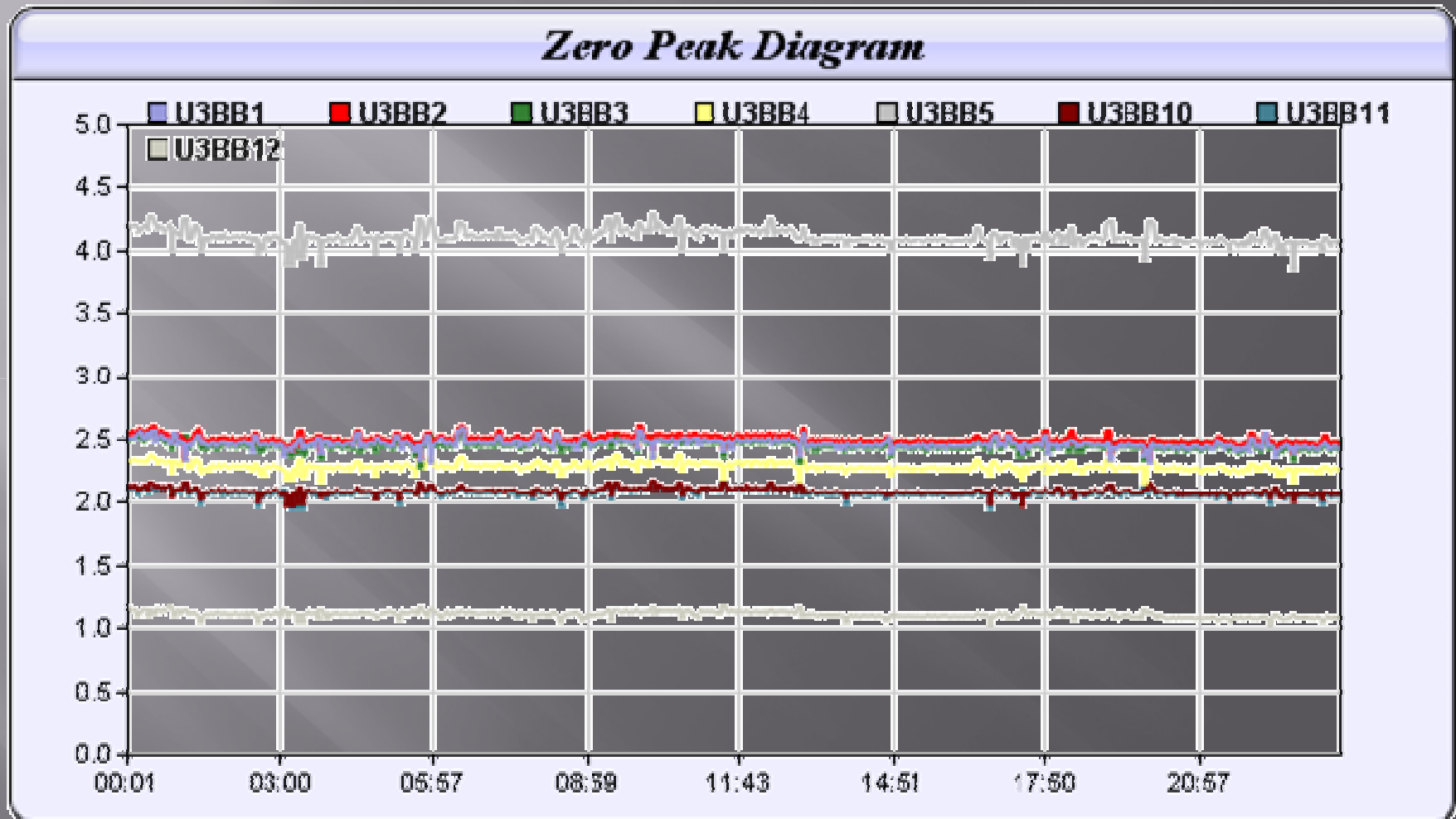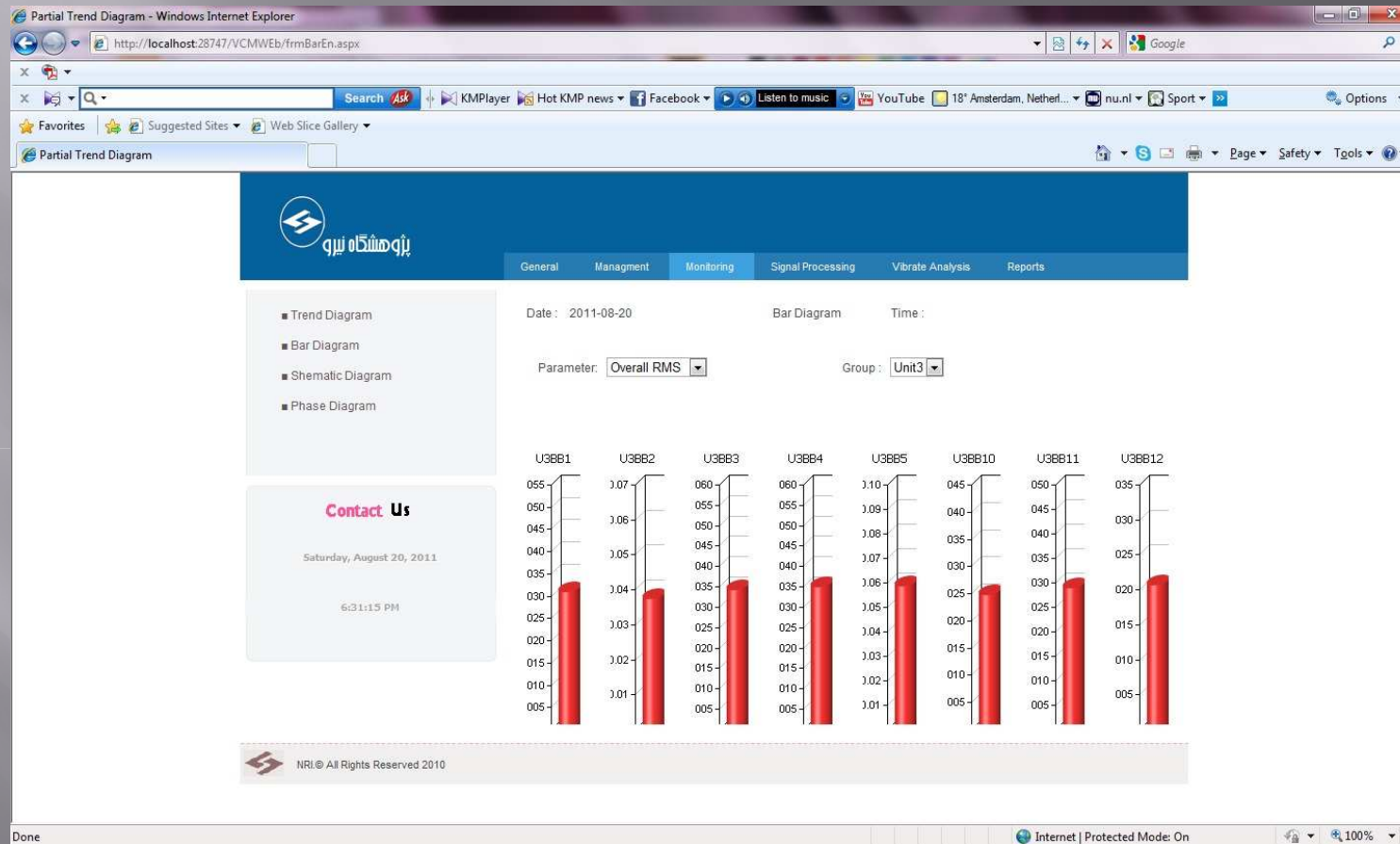
Trend Diagram of ABADAN GAS PowerPlant machines
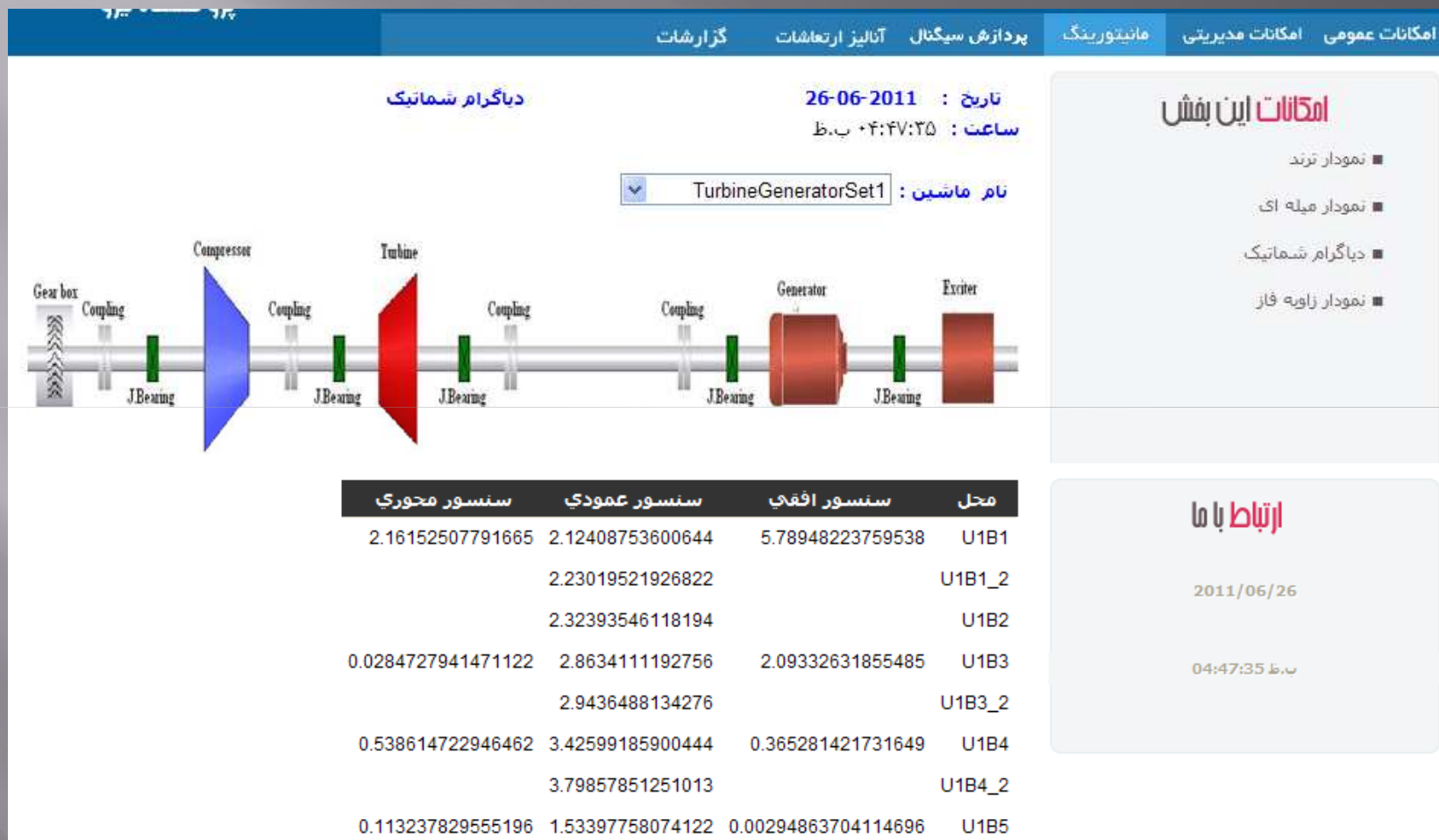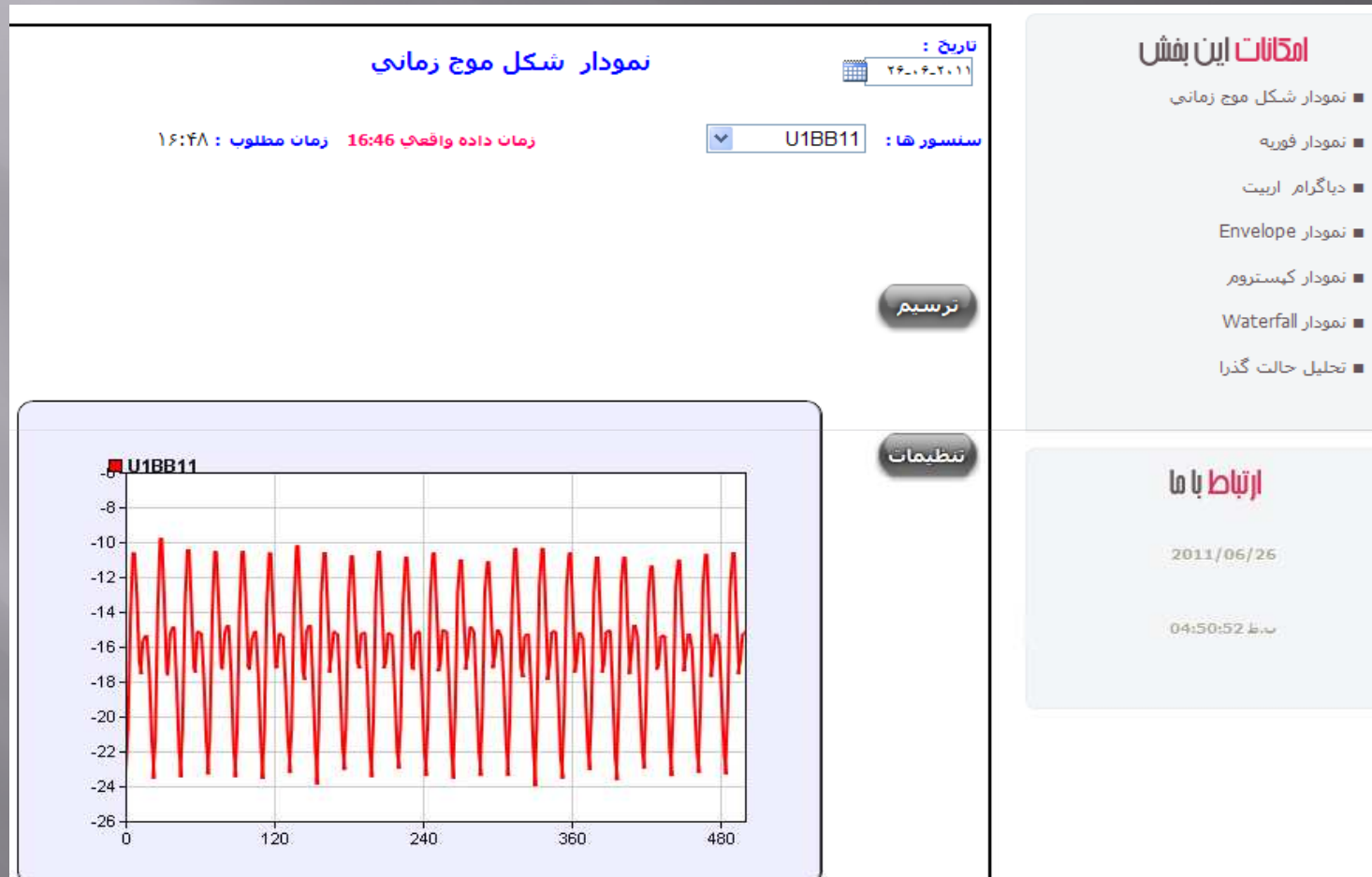

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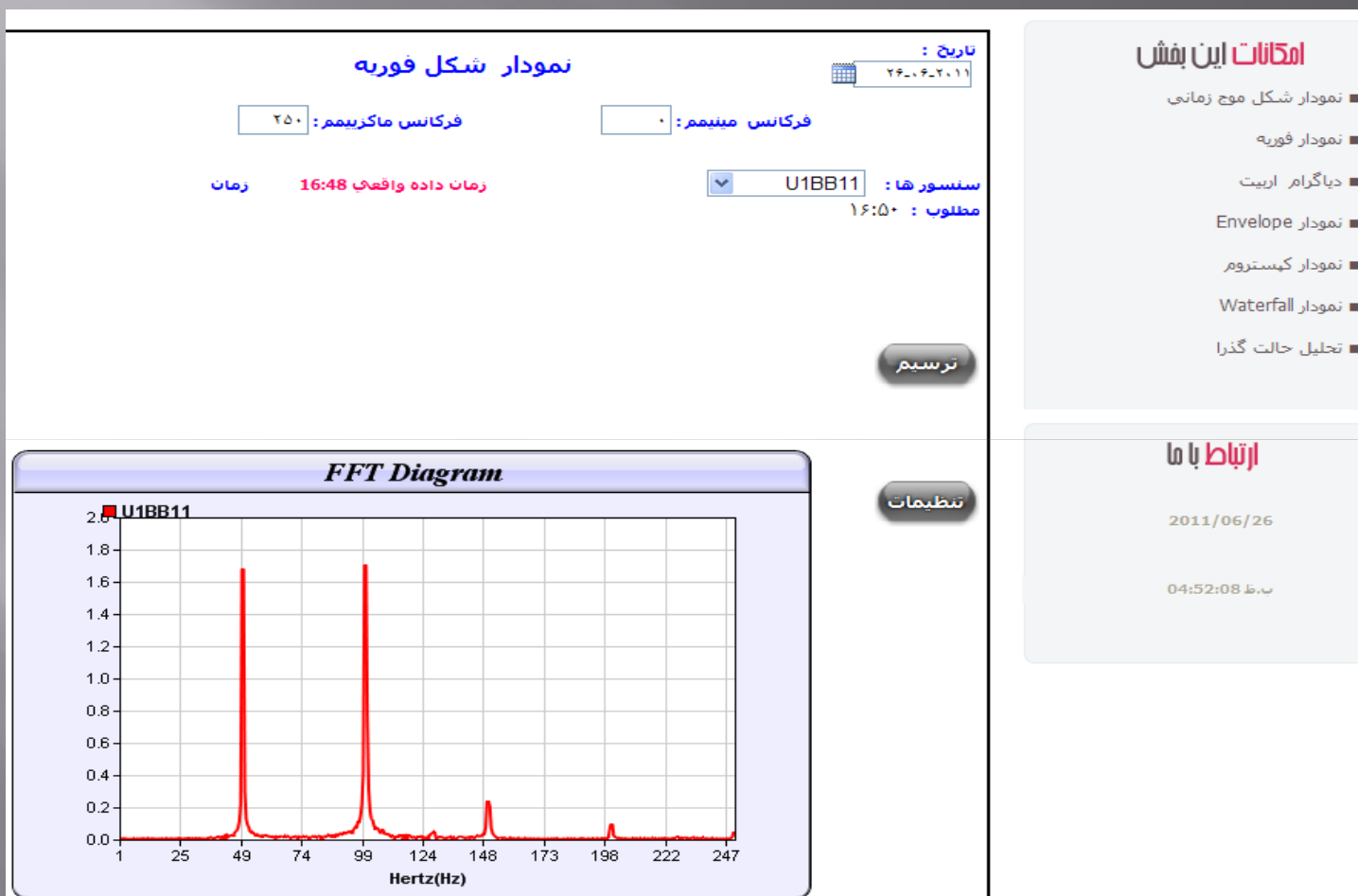# Trend Diagram of ABADAN GAS PowerPlant machines
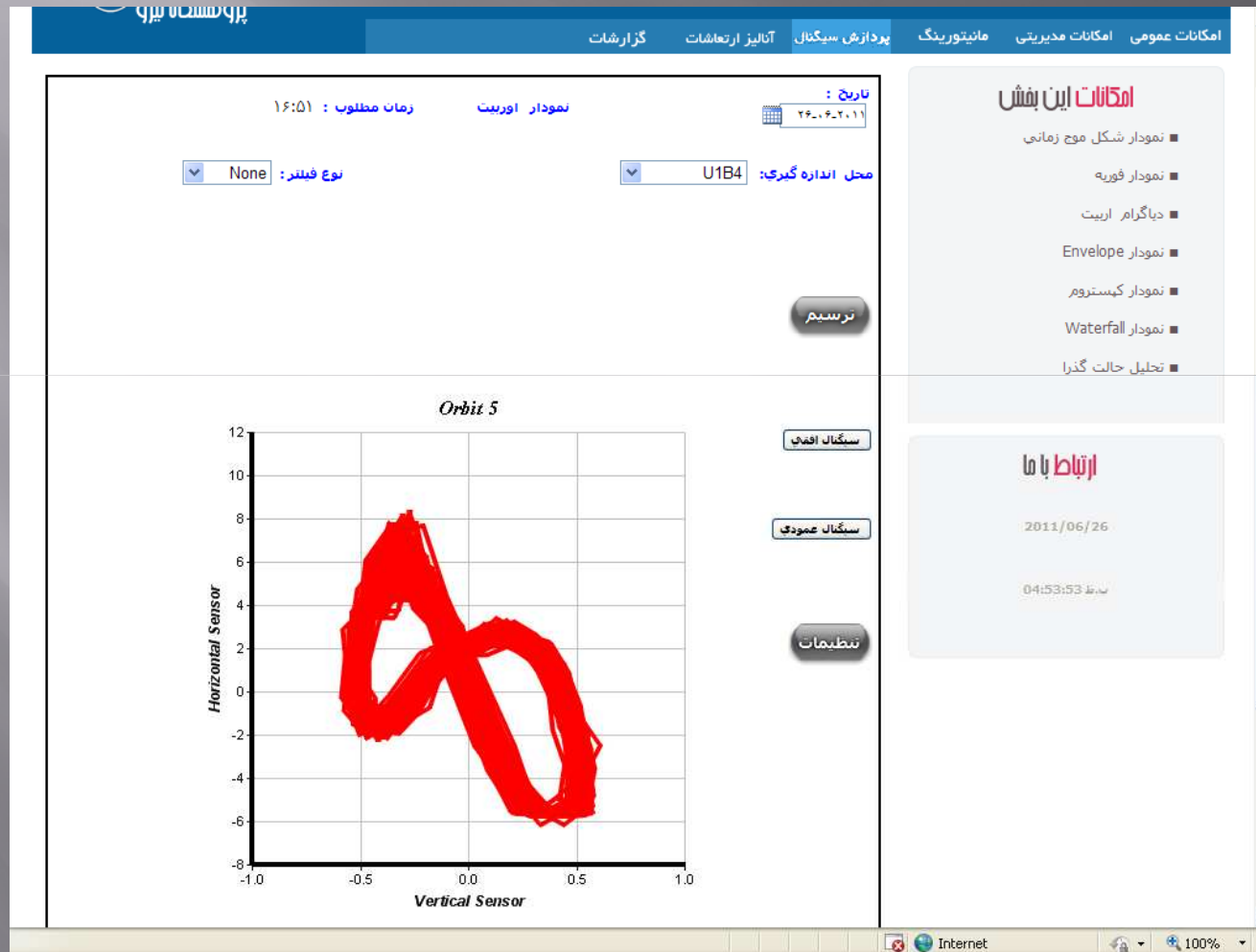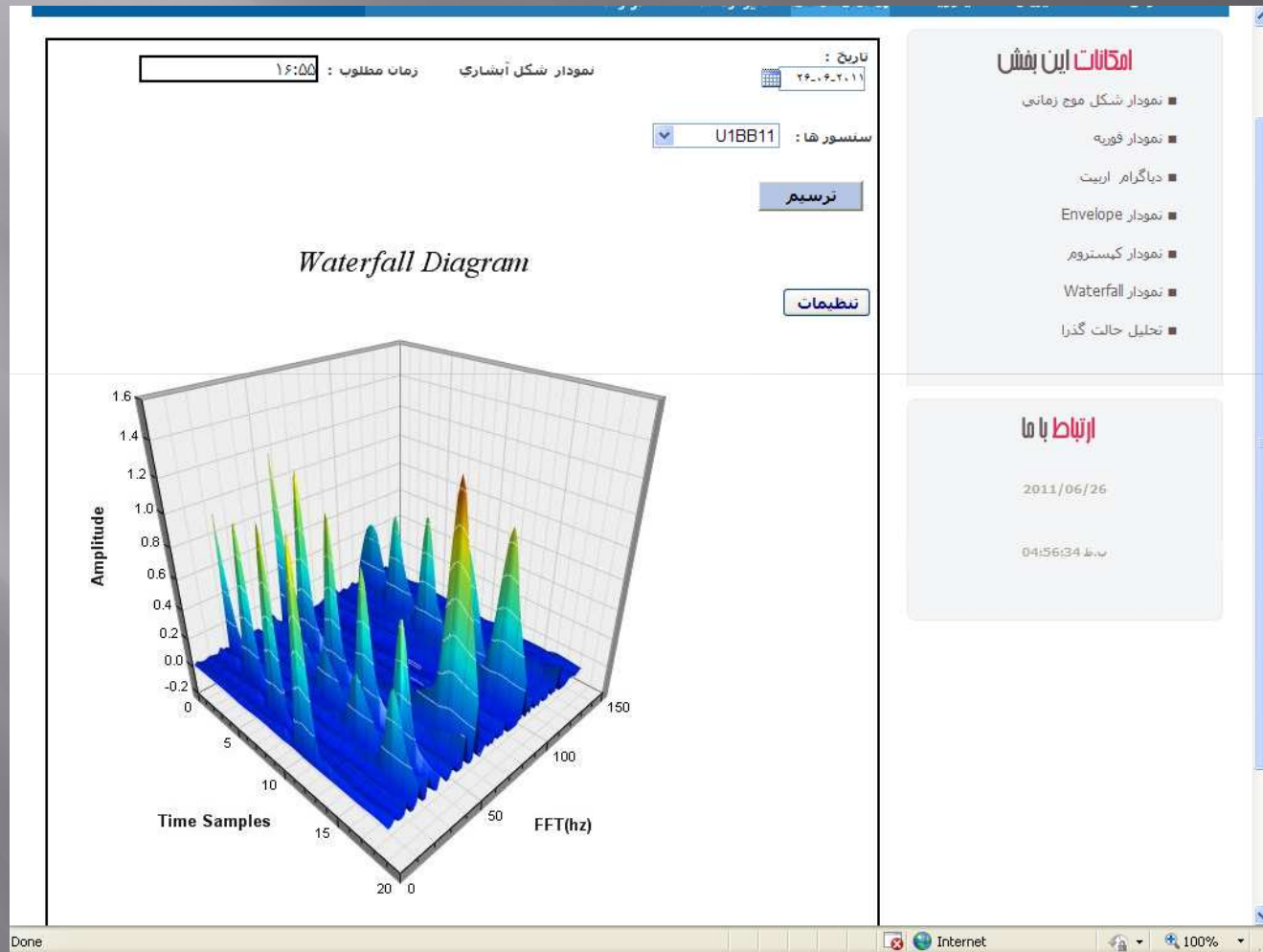
Bar Diagram

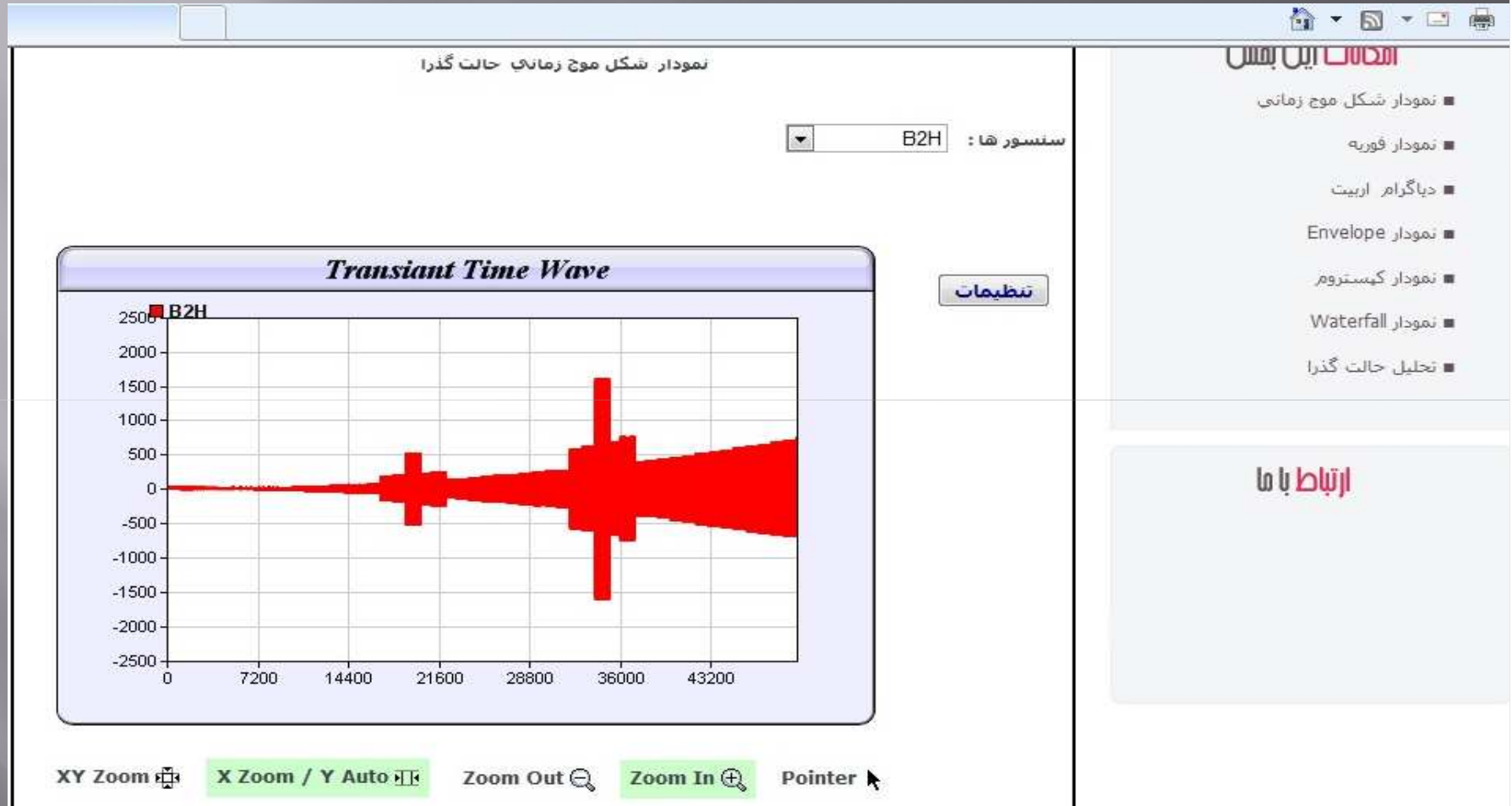# Online Sensors Data Monitor

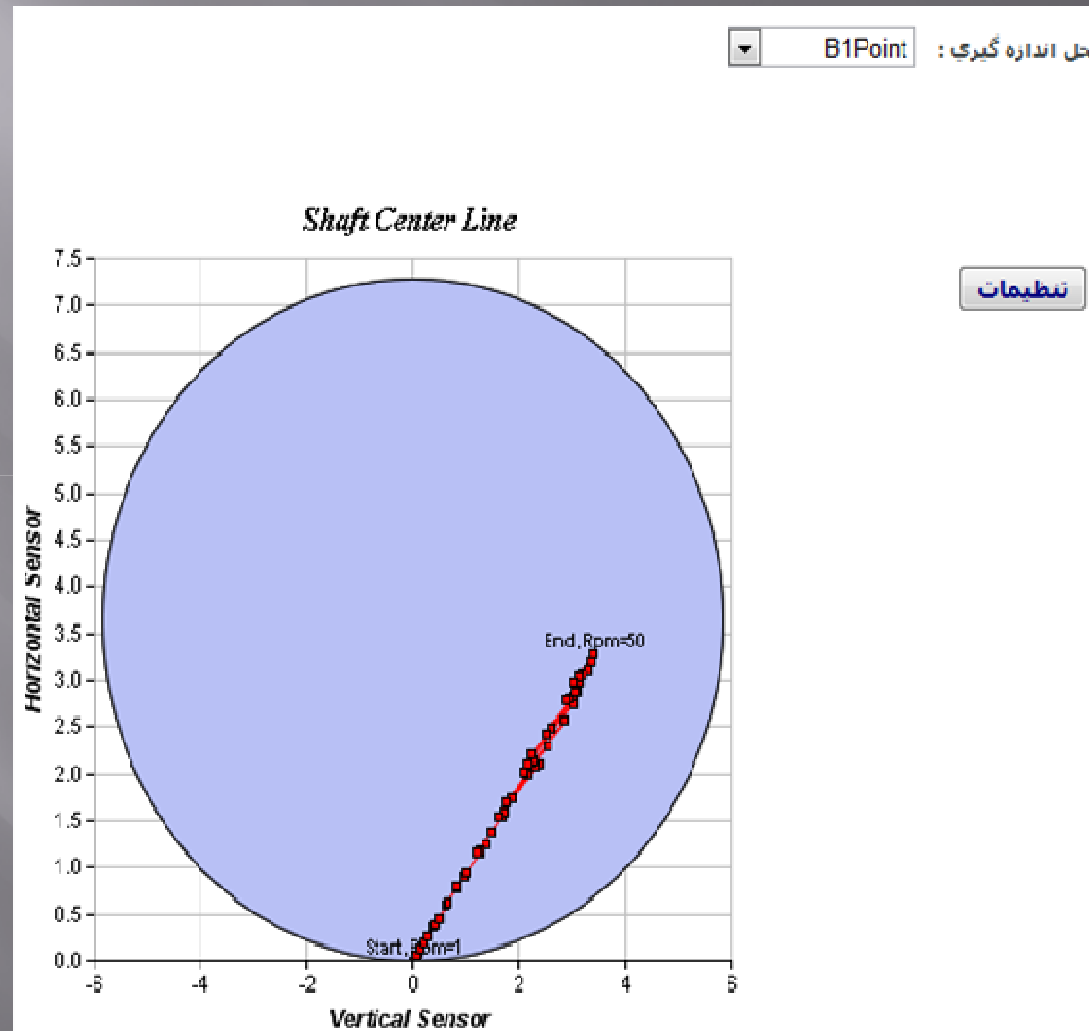# Time Wave Diagram

FFT Diagram
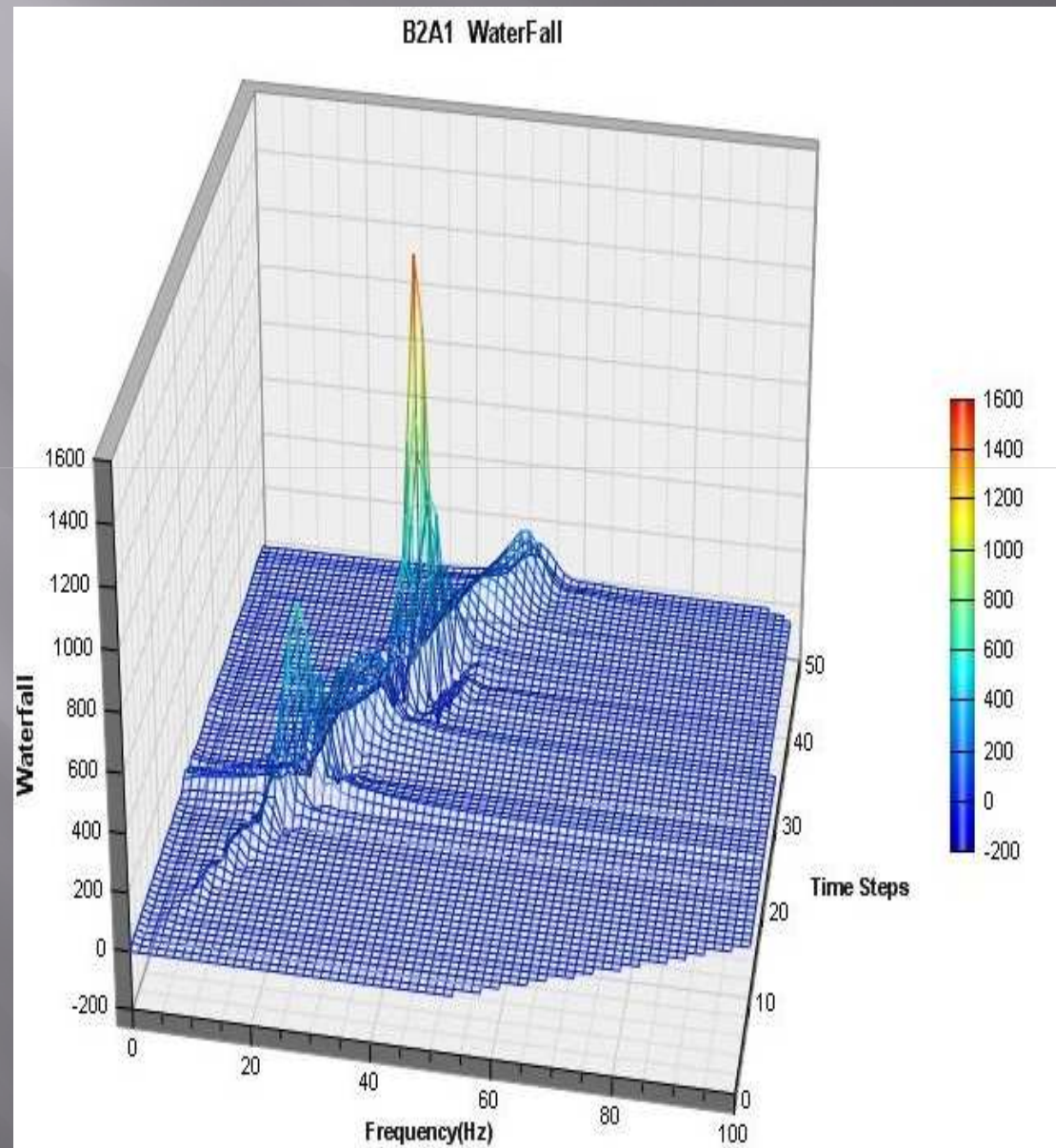
Shaft Orbit Diagram
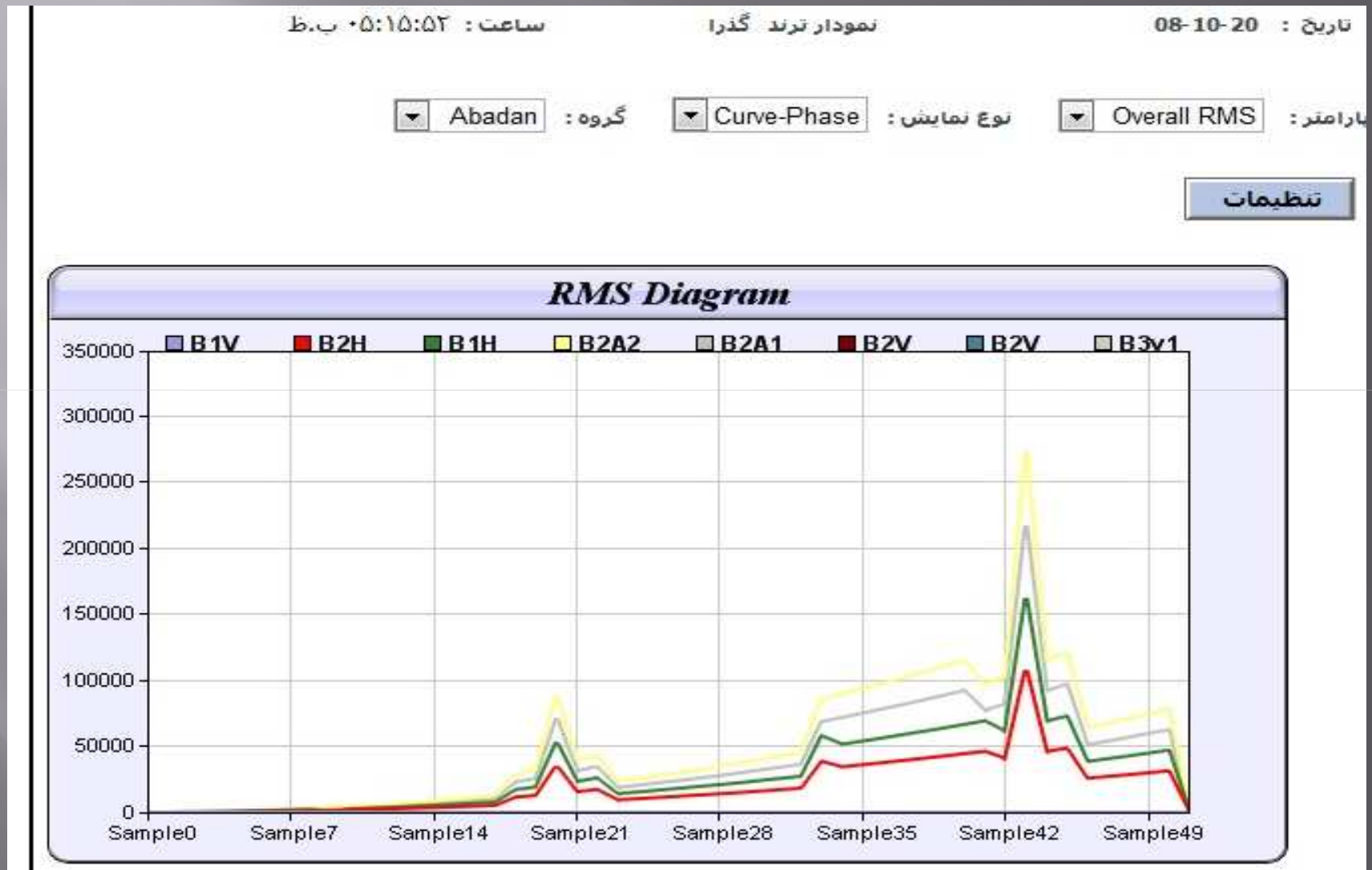
Waterfall Diagram

Transiant State Data Plot

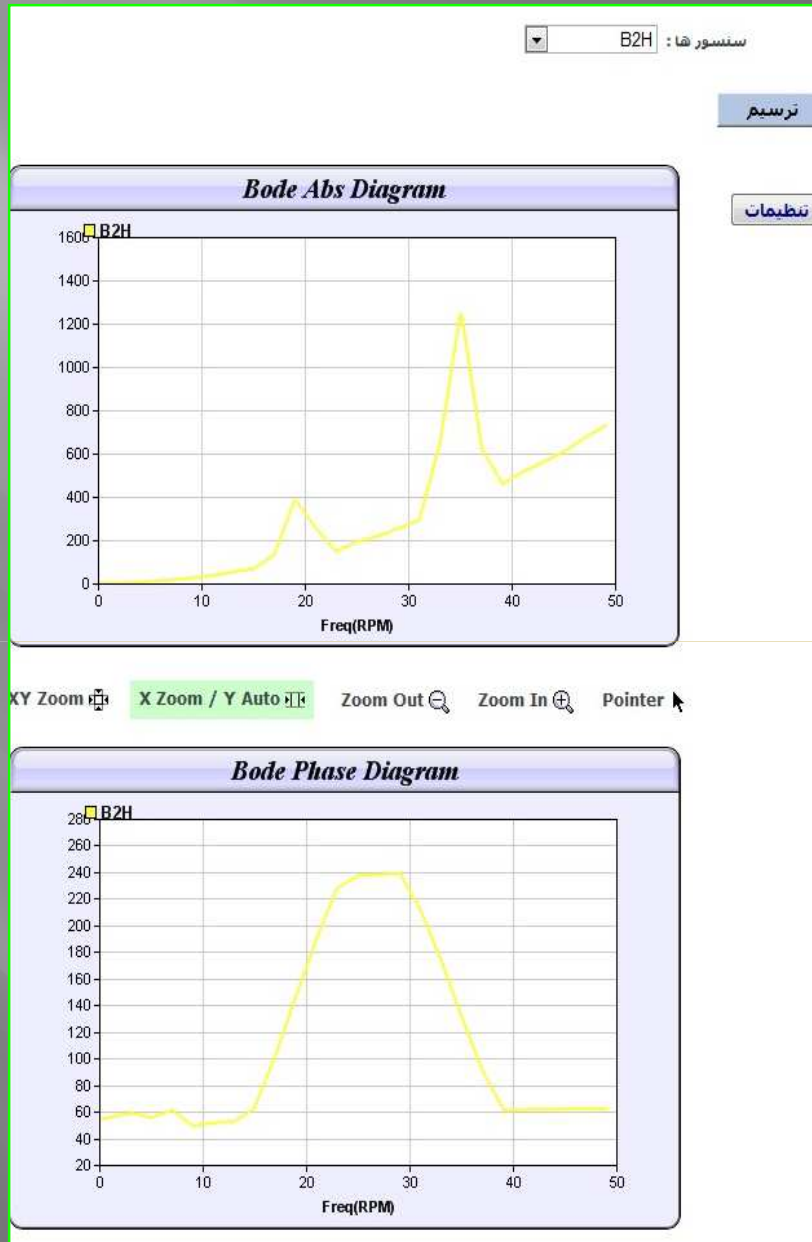# Shaft Centerline Plot of Machine Transient Start Condition

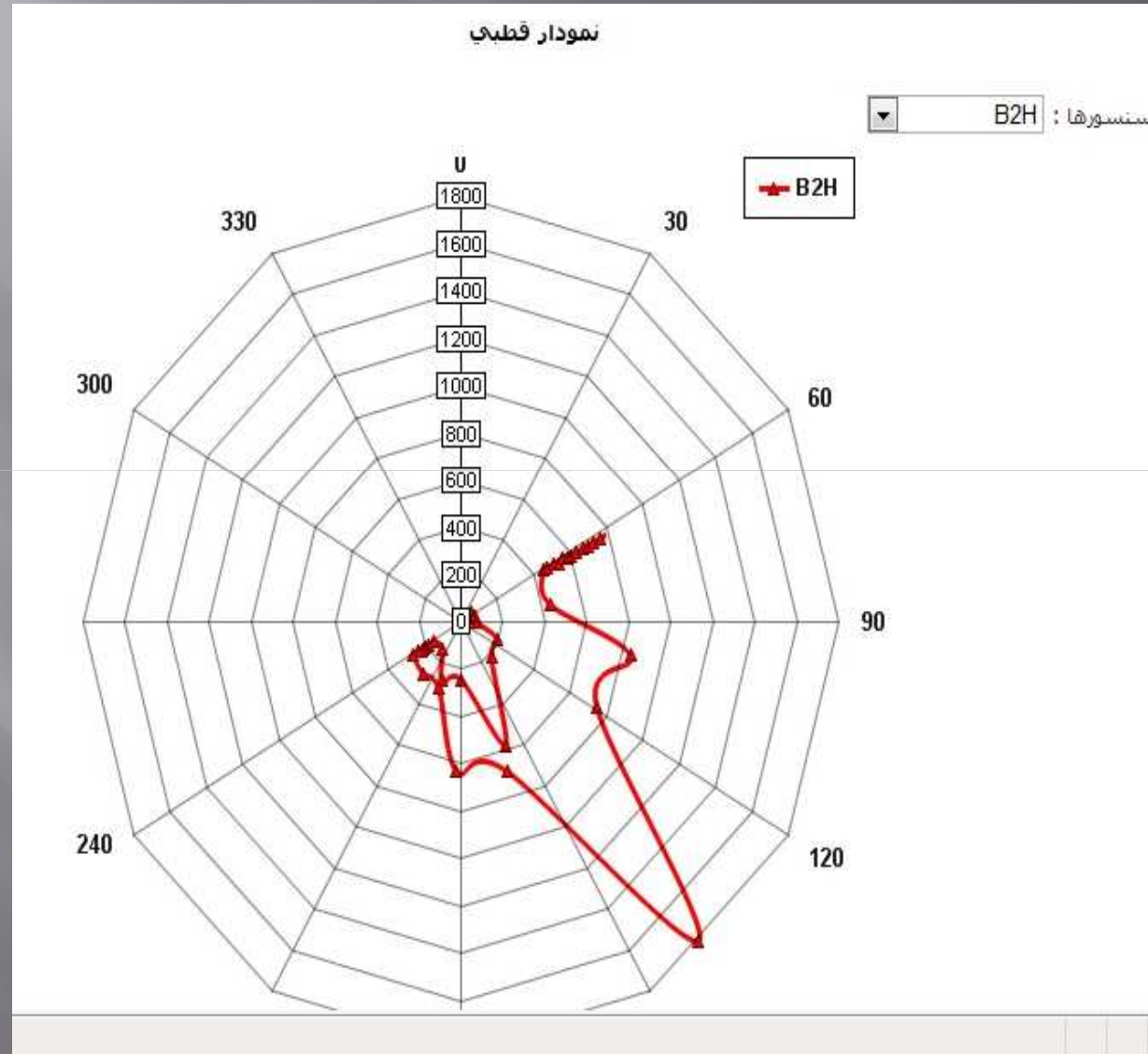# Water Fall Diagram of Engine Stop Condition

Transient Trend Diagram

Bode Diagram

Polar Diagram

Vibration Diagnosis Results from Artificial Neural Network Output

أناليز ارتعاشات ماشينهاى دوار

نام ماشين : TurbineGeneratorSet1 سرعت : Rpm ٣٠٠٠
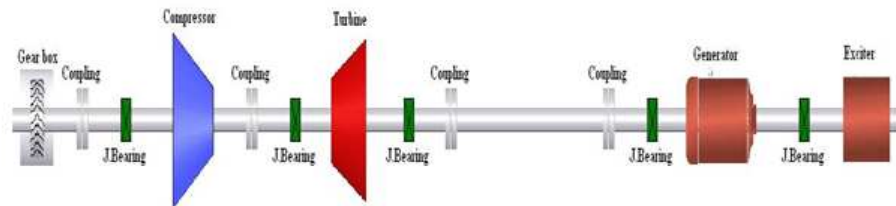
تاريخ : ٢٦_٠٦_٢٠١١ زمان اندازه گيرى: ١٦:١٧:١٩

أناليز

پاسخ به سوالات عيب يابى

Gear box | Coupling | Compressor | Coupling | Turbine | Coupling | Coupling | Generator | Exciter

J.Bearing | J.Bearing | J.Bearing | J.Bearing | J.Bearing

نتايج أناليز

نقاط اندازه گيرى	U1B1	U1B1_2	U1B2	U1B3	U1B3_2	U1B4	U1B4_2	U1B5
ذخيره اطلاعات مبنا	■	■	■	■	■	■	■	■
ناميزانى	0	0	0	0	0	0	0	0
عدم هم محورى	0	0	0	0	0	65.64	99	0
خميدگى شفت	0	10.32	0	0	3.36	40.56	0	0
سايش	0	87.8	85.2	0	99.9	0	0	0
لقى اجزاء روتور	0	88	89.4	0	86.4	76.1	87.3	0
لقى اجزاء ياتاقان يا لقى اتصالات	0	0	0	0	0	92	98	0
چرخش روغن	0	61.1	59.1	0	75.3	0	0	0
عيوب فركانس بالا	0	2.8	0	0	0	0	13	0
سرعت بحرانى	0	88.1	95.5	0	95.2	88.7	87.9	0
ترك روتور	66	60	66	61	66	61	69	69
خارج از مركزى روتور	69	64	68	67	63	62	62	69
جدا شدن بخشى از روتور	65	67	65	61	63	69	64	63
سختى نامتقارن	66	64	67	62	69	64	68	60
تحريك الكترومغناطيسى	68	64	63	64	60	61	60	66

Vibration Generation Benchmark In our Laboratory Tests

Installed Softwares in montazergaem powerplant
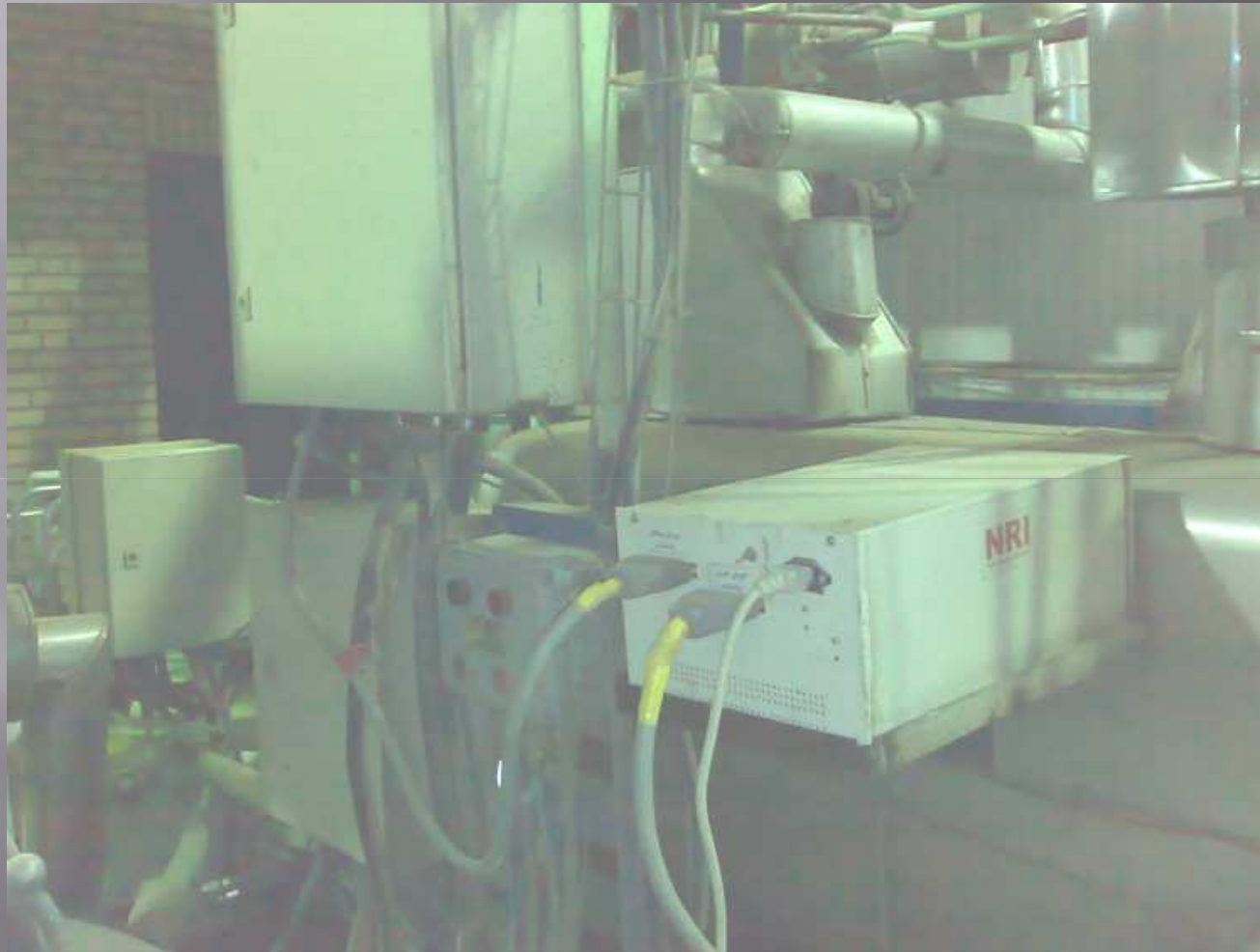
Montazer Gaem Powerplant Monitoring Software