



# YUTECH Automation

the sweetener to success



# YUTECH

## Automation Solutions For Integrated Sugar Complexes

YUTECH brings All Sugar Mill, Sugar Process, Sugar Refinery, Co-Generation Power Plant, Distillery AUTOMATION, INSTRUMENTATION AND MACHINED SPARE PART Requirements and Solutions UNDER ONE ROOF

**SUSTAINED GROWTH IN PRODUCTIVITY AND REVENUES  
IMPROVED PRODUCT QUALITY  
REDUCED CARBON FOOTPRINT**

**YUTECH - MAKE MORE MONEY**



## YUTECH Offers Turnkey Automation and Instrumentation Solutions for Complete Integrated Sugar Complex consisting of Cane Sugar Factory, Sugar Refinery, Co-Generation Power Plant and Distillery.

YUTECH has experience of over 42 years in Sugar Factory Automation. YUTECH has pioneered a number of Sugar Automation Solutions which are now in common use, like Infra Red type Donnelley Chute Level Sensors and Automatic Cane Feeding Control System introduced in 1984. Our Brix Analyzers and Concentric Split Diaphragm Valves also called Iris Valves are excellent products to improve Sugar Manufacturing Efficiency.

At YUTECH, it is our commitment to Quality Instrumentation and Exceptional Customer Service that has remained the cornerstone of our success. YUTECH has a clear priority, to facilitate the best suited solutions to your specific needs.

### YUTECH Sugar Mill Process Instruments:

#### YUTECH Sugar Mill Process Instruments for Mill House:

- Infra Red Type Donnelley Chute Level Sensors for Mill Donnelly Chute and Boiler Bagasse Silo Level Sensing
- Hall's Effect Type Cane Blanket Level and Top Roller Lift Sensors
- Precision LT and HT Motor Load Current Transmitters

#### YUTECH Sugar Mill Process Instruments for Sugar Process and Continuous Centrifugal Machines:

- Brix Analyzer with Self Cleaning and Washing Auto Retractable RF Brix Sensors
- Conductivity Analyzers with Self Cleaning Auto Retractable Sensors
- pH Analyzers with Self Cleaning Auto Retractable and Swappable Electrode Assembly
- Concentric Split Diaphragm (CSD) Valve also called IRIS Valve based Continuous Centrifugal Machine Automation System

### YUTECH Machines:

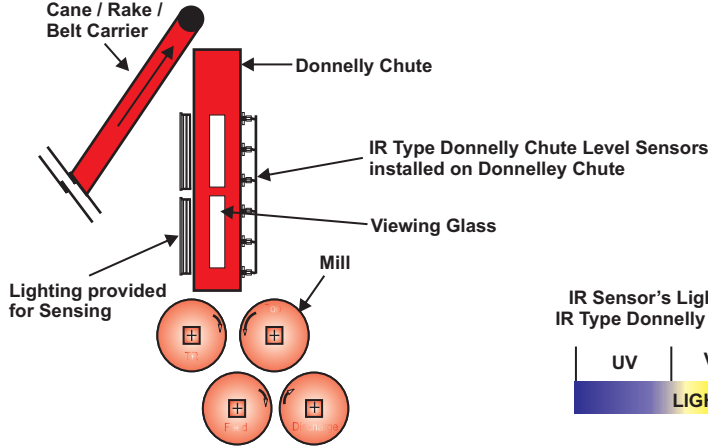
- Machined Mechanical Spares for Sugar Factories and Boilers as per Customer Specified Material and Drawings

Brief Information is given on Page 3 and 7. Please see YUTECH Sugar Mill Process Instruments Brochure for detailed information and please visit our website [www.yutech.in](http://www.yutech.in) for detailed technical presentations. Please see our Sugar Factory Spares Brochure for details.

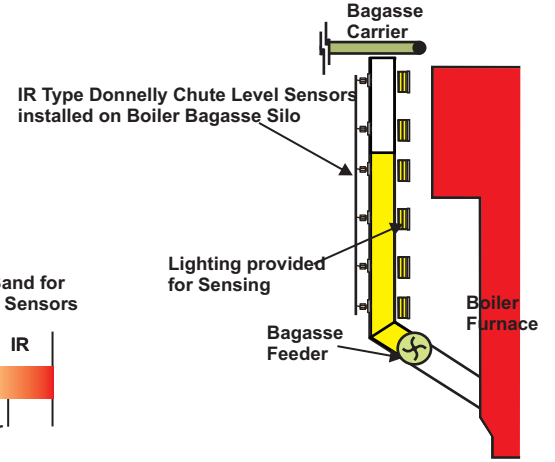


### YUTECH INFRA RED TYPE DONNELLY CHUTE LEVEL SENSORS:

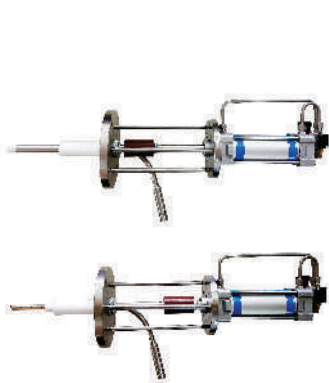
**Schematic Diagram of IR Type Donnelly Chute Level Sensors installation on Donnelley Chute**



**Schematic Diagram of IR Type Donnelly Chute Level Sensors installation on Boiler Bagasse Silo**



### YUTECH INTELLIGENT PROGRAMMABLE BRUX ANALYZER WITH AUTO RETRACTABLE SELF CLEANING AND WASHING BRUX SENSOR:



**YUTECH BRUX ANALYZER FEATURES:**

- High Frequency Sensing
- Intelligent Auto Purity Compensation
- Easy Calibration Kit
- Easy Online Re-Calibration
- Remote Calibration from our Works
- Auto Sensor Cleaning and Washing Controls
- 4-20mA Brix Output
- Brix Output on Modbus TCP/IP / Ethernet/IP
- YUTECH Access App
- Auto Retractable Self Cleaning and Washing Brix Sensor

For more details please see **YUTECH Sugar Mill Process Instruments Brochure** and **YUTECH Instruments Brochure**. Visit us at [www.yutech.in](http://www.yutech.in).

### Other YUTECH INSTRUMENTS Products:



Draft Range Pressure & Vacuum Transmitters



Auto / Manual Stations



pH Analyzer



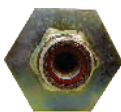
Process Indicator Controller



Large or Jumbo Displays 1' to 10" digit size with Wireless Remote Calibrator



Furnace Flame Detector & Sensor



I/O Cards



CT Converter / AC Voltage Converter



Process Indicator



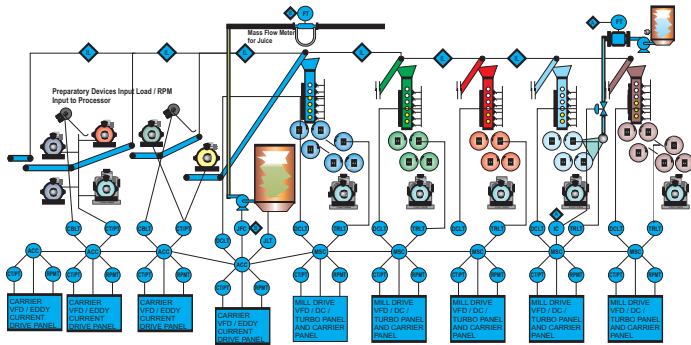
Isolation Barriers / Signal Converters / Isolating Repeaters



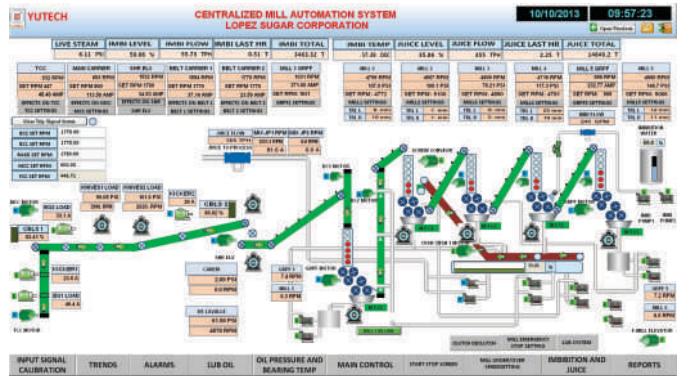
**YUTECH**

**SUGAR MILL HOUSE AUTOMATION:**

**SUGAR MILL AUTOMATION**



**SCHEMATIC DIAGRAM: MILL CONTROL SYSTEM**



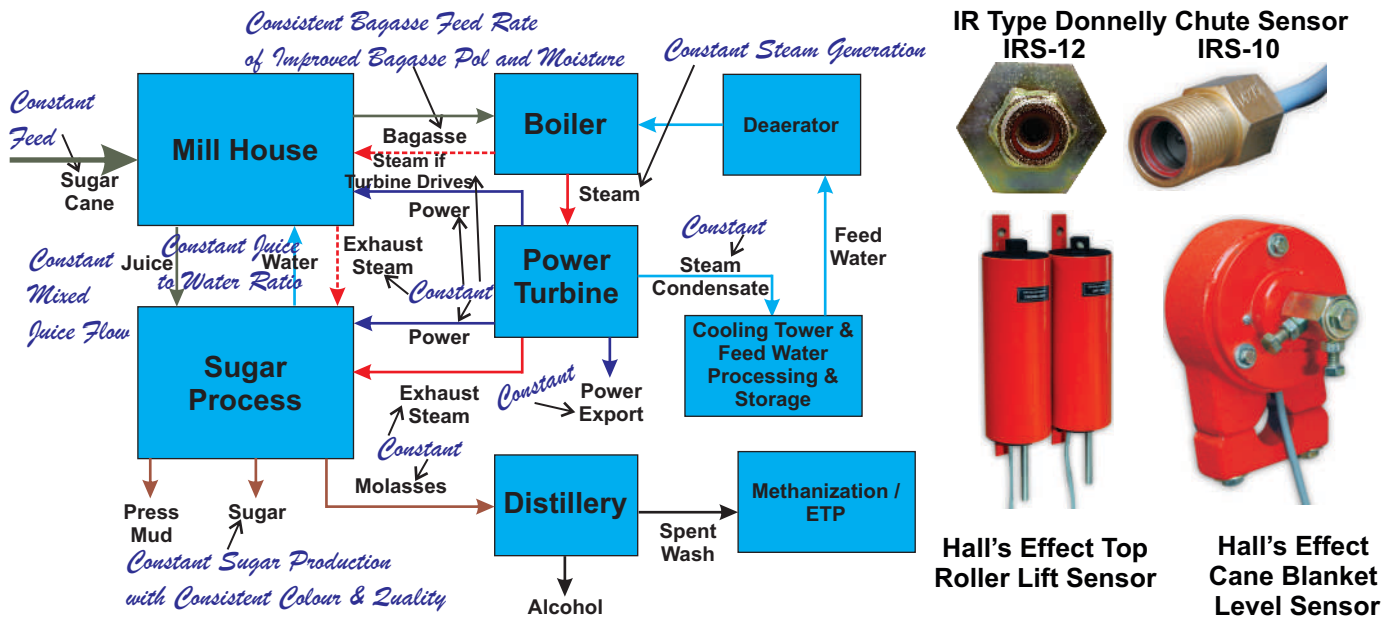
**SCREEN SHOT: MILL CONTROL SYSTEM**

**YUTECH Sugar Mill Automation Ensures the following Advantages and Stabilizes The Whole Sugar Plant:**

- Increased Milling with the Same Equipment
- Continuous and Un-interrupted Feeding reduces Downtime and Increase Throughput
- Elimination of Choking at Preparatory Devices, Mills, Chutes or Carriers increases Up Time and Consistency
- Maintained Juice to Imbibition Water Ratio increases Juice Evaporation Efficiency in Evaporators while ensuring Effective Water Saving. Further Cutting off Water Flow when Crushing is stopped ensures Dry Bagasse
- Optimum Mill Speeds w.r.t., Loads and Levels ensure good Milling and Stabilized Constant Mill Power Demand
- Constant Juice Flow for Process ensures even loading in the Boiling House and Stabilizes and Reduces the Steam Consumption which means higher Boiling House efficiency and Bagasse Saving
- Constant Bagasse Feeding to Boilers of Consistent Bagasse POL and Moisture Ensures Better Boiler Efficiency

**YUTECH Sugar Mill Automation Features:**

- Infra Red Type Donnelly Chute Level Sensors (We are Inventors and the Only Manufacturers of IR Sensors for Donnelly Chute Level) ensure Correct and Accurate Level Sensing through Raining Bagasse inside the Chute
- Hall's Effect Type Cane Blanket Level and Top Roller Lift Sensors
- Precision Motor Load / Pressure Sensors to sense Cane Preparatory Device / Mill / Pressure Feeder Load
- User Friendly Customized Mill Automation Software

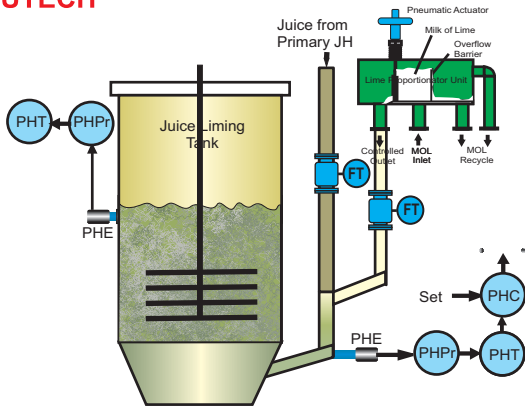


**BLOCK DIAGRAM OF MILL AUTOMATION ADVANTAGES**

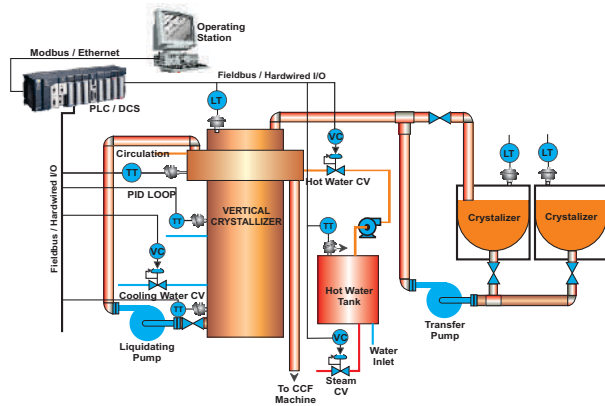
**YUTECH Mill Automation Improves not only Mill Efficiency but also Boiler, Process and Overall Factory Efficiency, Quality and Performance**

**Hence Mill Automation Increases and Sustains Revenues Year on Year**

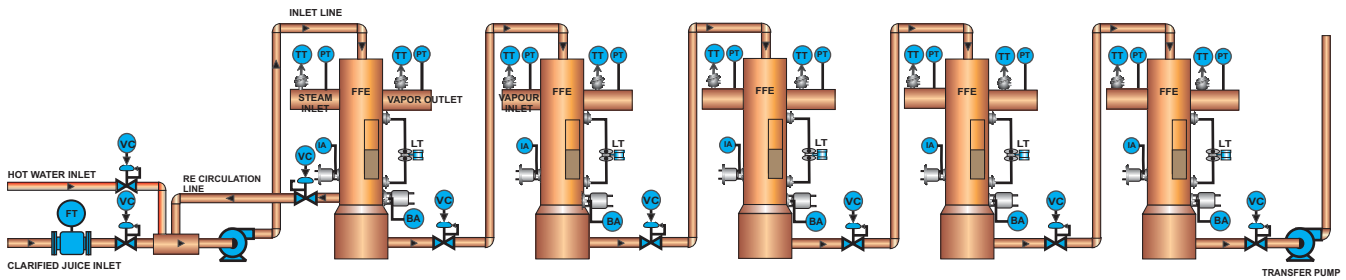
Please refer to our detailed Mill Automation Presentation on [www.yutech.in](http://www.yutech.in)



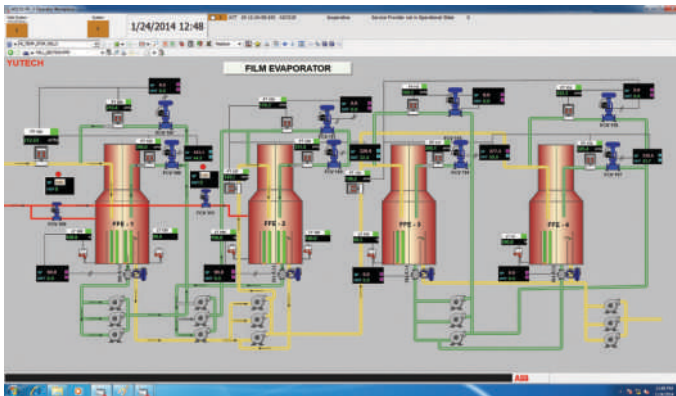
**SCHEMATIC DIAGRAM: AUTOMATIC LIMING (pH) CONTROL SYSTEM**



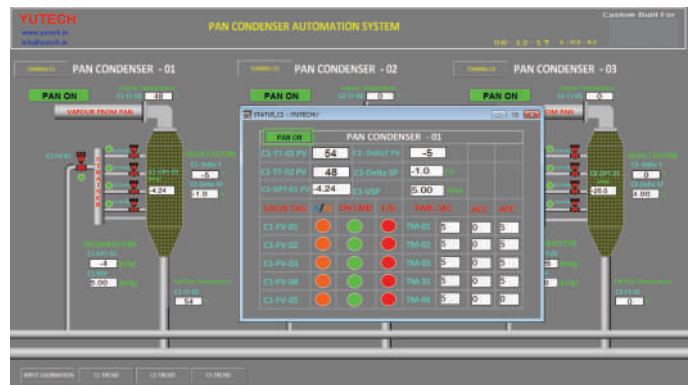
**SCHEMATIC DIAGRAM: VERTICAL CRYSTALLIZER AUTOMATION**



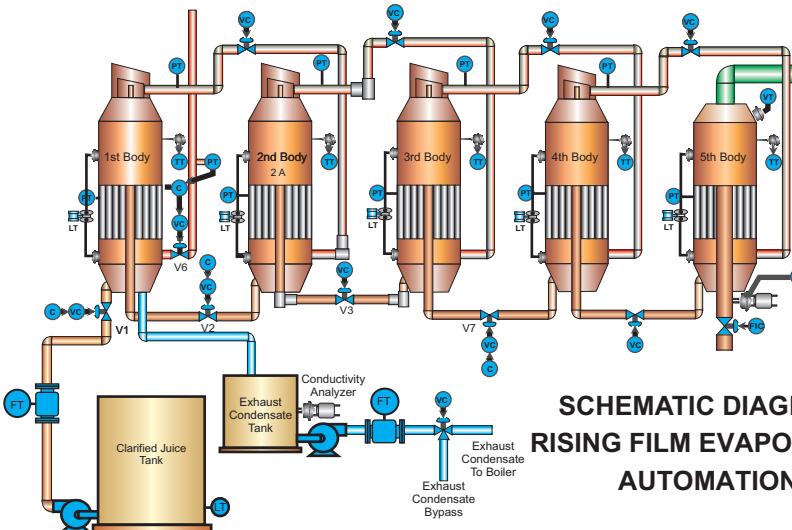
**SCHEMATIC DIAGRAM OF FALLING FILM EVAPORATOR AUTOMATION**



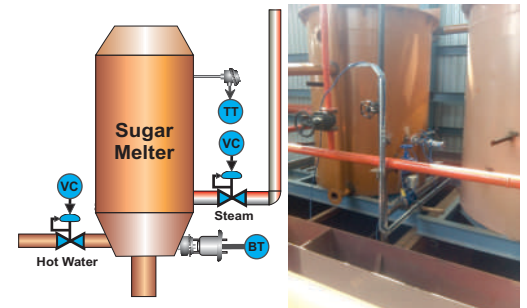
**SCREEN SHOT: EVAPORATOR AUTOMATION**



**SCREEN SHOT: CONDENSOR AUTOMATION**



**SCHEMATIC DIAGRAM: RISING FILM EVAPORATOR AUTOMATION**



**SUGAR MELTER AUTOMATION AND MOLASSES CONDITIONER AUTOMATION SHARE THE SAME CONTROL SCHEME**

Please refer to our detailed Sugar Process Automation Presentation on [www.yutech.in](http://www.yutech.in)



**YUTECH**

**SUGAR PROCESS AUTOMATION:**

- Juice Heater / PHE Control System
- pH and Lime Dozing Automation
- Clarifier Automation
- Direct Contact Juice Heater Automation
- Evaporator Station Automation
- Batch and Continuous Pan Station Automation

# SUGAR PROCESS AUTOMATION

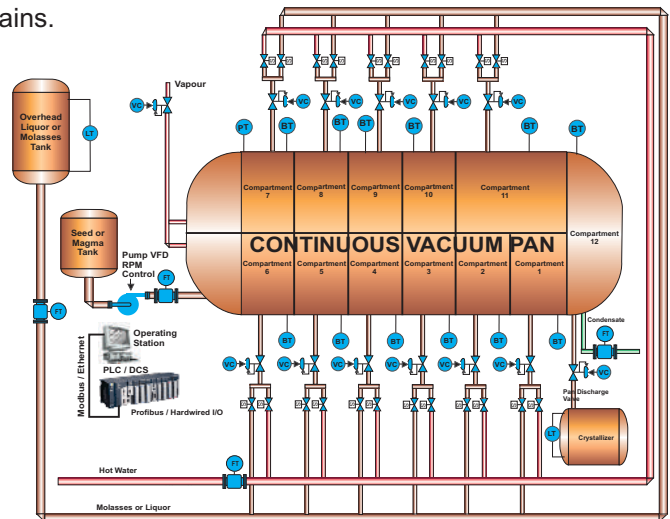
- Condensor Automation
- Sugar Melter and Molasses Conditioner Automation
- Vertical Crystallizer Automation
- Superheated Wash Water System
- Pressure Reducing and De-Superheating Station Automation
- Steam and Vapour Balancing System
- Continuous Centrifugal Machine Automation

**Operational Advantages of Process Automation:**

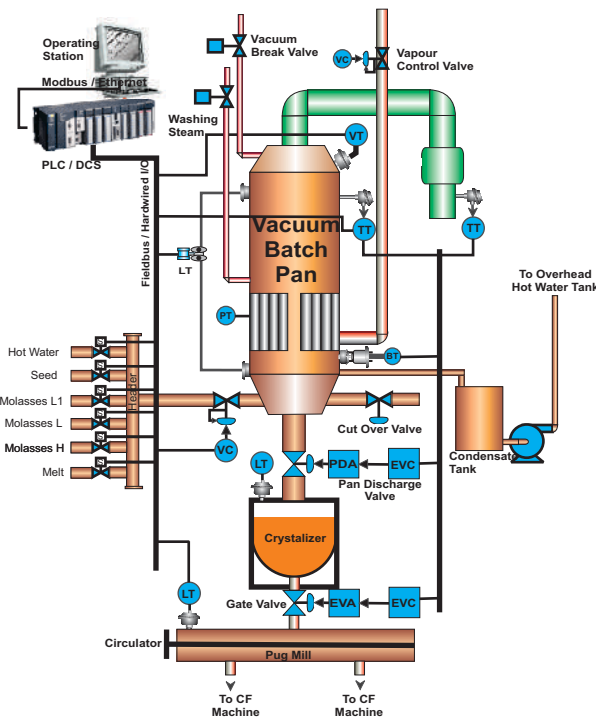
- Stabilized Shock Lime and Final pH Ensures Better & Consistent Juice Clarity & Stabilized Dorr pH.
- Constant Evaporator Operation Ensures Smooth Sugar Manufacturing Process
- Maintained Evaporator Level Reduces / Eliminates Entrainment through Vapour
- Constant Evaporation results in Constant Vapour Generation hence better Heat Efficiency
- Pan Automations Ensure Maintained Grain Size thus better and constant Sugar Quality.
- All above advantages ensure Better Sugar Colour thus Higher Sugar Price.
- Increased Throughput in the same operation time and Optimum Capacity Utilization.
- Saves Power, Steam and Water thus Fuel Saving.
- Reduced Cost of Operation effect Substantial Economic Gains.



**PICTURE OF YUTECH SELF CLEANING AUTO RETRACTABLE BRUX SENSOR INSTALLED ON CV PAN**



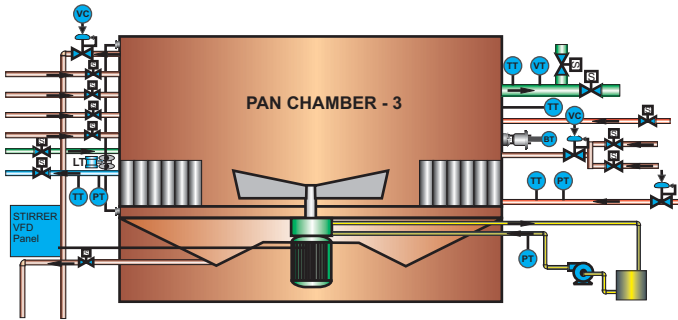
**SCHEMATIC DIAGRAMS: CONTINUOUS AND BATCH TYPE VACUUM PAN AUTOMATION**



**SCREEN SHOT: HORIZONTAL CONTINUOUS VACUUM PAN AUTOMATION**

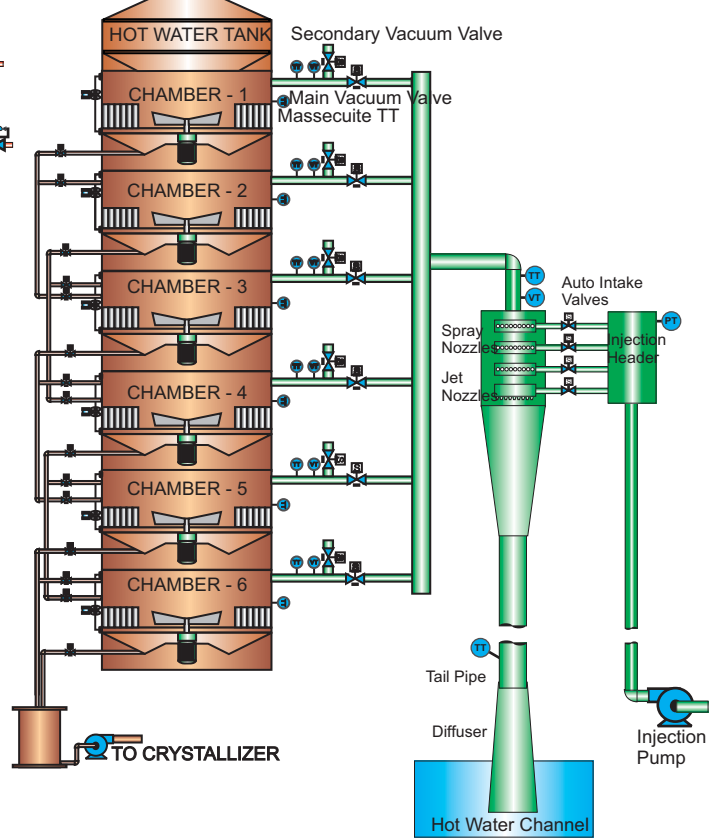
Please refer to our detailed Sugar Process Automation Presentation on [www.yutech.in](http://www.yutech.in)

## SCHEMATIC DIAGRAM OF INDIVIDUAL PAN CHAMBER AUTOMATION IN VCVP

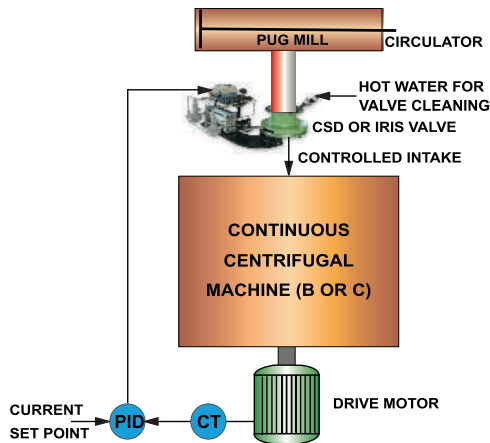


## SCHEMATIC DIAGRAM OF VERTICAL CONTINUOUS VACUUM PAN AUTOMATION INCLUDING CONDENSER AUTOMATION

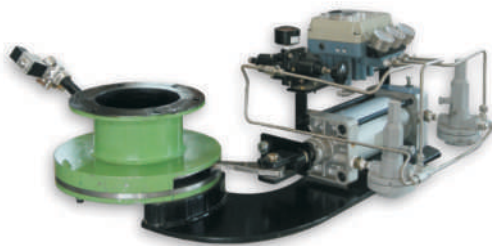
(Please refer to our detailed presentation on website)



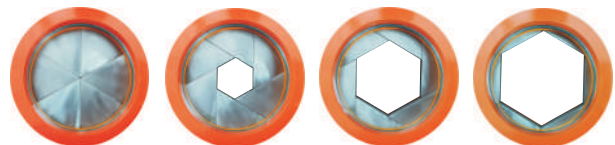
## SCHEMATIC DIAGRAM OF CONTINUOUS CENTRIFUGAL MACHINE AUTOMATION



## CONCENTRIC SPLIT DIAPHRAGM (CSD) VALVE ALSO CALLED IRIS VALVE ELECTRO PNEUMATIC POSITIONER & PNEUMATIC ACTUATOR WITH AND WITHOUT FLANGE CONNECTION



CSD VALVE WITHOUT ACTUATOR



APERTURE TYPE CENTRAL OPENING

## CSD / IRIS TYPE CONTROL VALVE INSTALLED ON CONTINUOUS CENTRIFUGAL MACHINE FOR AUTOMATIC MASSECUITE INTAKE WRT DRIVE LOAD, CONTROL SCHEME AS BELOW

Please refer to our detailed Sugar Process Automation Presentation on [www.yutech.in](http://www.yutech.in)



YUTECH

# POWER PLANT AUTOMATION

## POWER PLANT AUTOMATION:

YUTECH has successfully executed many complete Power Plant Automation Projects based on various PLC and DCS Platforms.

### Boiler Automation Features that Ensure Higher Efficiency:

#### Boiler Feed Water and Steam Side Automation:

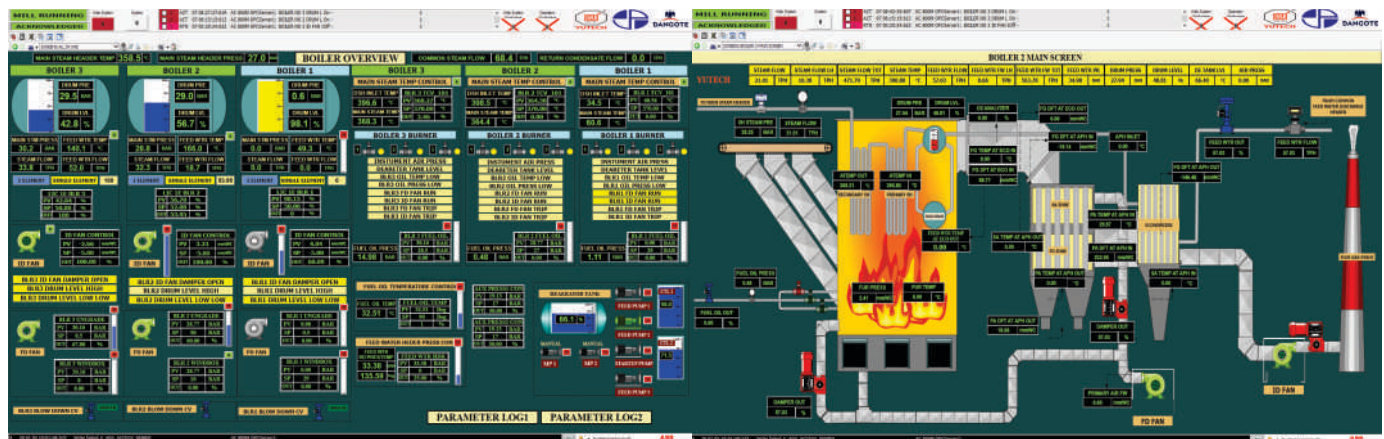
- Consistent FW Temperature due to accurate De-aerator Controls
- Very smooth and finely tuned Three Element Control System ensures balance between Steam Flow, Drum Level and Feed Water Flow
- Pressure & Temperature Compensated Three Element Controls ensure Consistent and Optimum Steam Generation
- Shrink and Swell Compensation in the Drum Level ensures Constant Steam Pressure.
- Multiple Boiler Pressure Compensation ensures all Boilers work at same Pressure with minimal Pressure Difference. This further ensures Constant Desired / Rated Steam Flow as Steam entry into the Header from all Boilers will be at same Pressure.

#### Boiler Combustion Side Automation:

- Combustion Algorithm directs FD Fan Controls to maintain Consistent Fuel to Air Ratio in accordance with the Steam Pressure thus increased Combustion Efficiency. Optimum FD Fan Speeds also reduce Power Consumption
- This Algorithm also directs ID Fan Controls to work in tandem with FD Fan Speeds and Furnace Pressure to ensure proper Combustion Conditions at all times while Optimum ID Fan Speeds also reduce Power Consumption
- Multiple Boiler Pressure Compensation Loop also works in accordance with this Algorithm to maintain all Boilers at the same Pressure
- Proper Combustion is evident from Reduction in Flue Gas Oxygen Level which means Dangerous CO emissions are reduced.

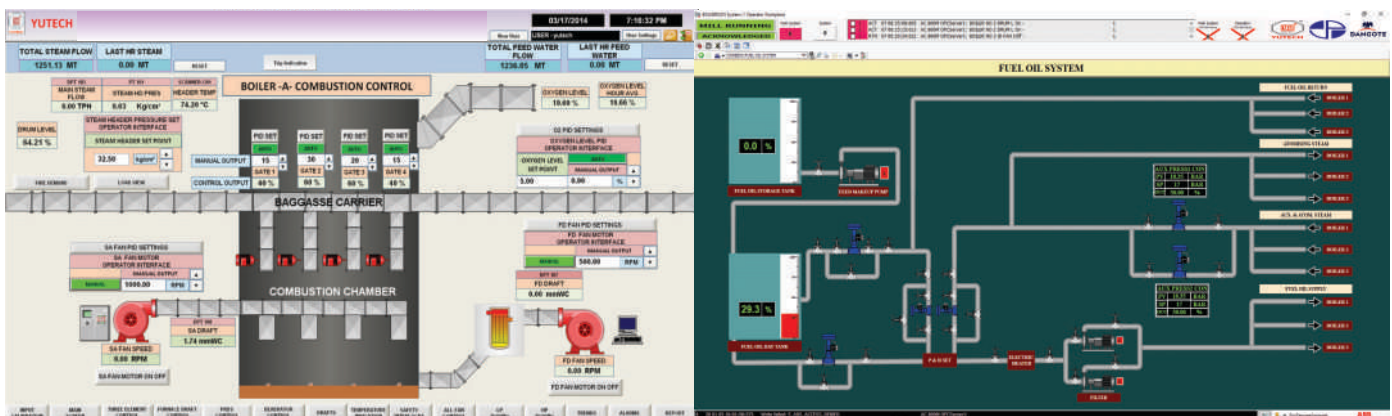
### Result of YUTECH Power Plant Automation:

- Improved Overall Boiler Efficiency with Consistent Steam Generation at Constant Pressure and Temperature
- Improved Steam to Fuel Ratio
- Optimum Combustion, Saves Fuel, Reduces Unburnt Carbon Losses and thus Reduces Carbon Footprint
- All Boilers work at the Desired Loads with minimal Steam Pressure Difference thus High Steam Availability
- Consistent Steam ensures Consistent Power Generation



SCREEN SHOT : 3 BOILERS COMMON SCREEN

SCREEN SHOT : BOILER AUTOMATION OVERALL

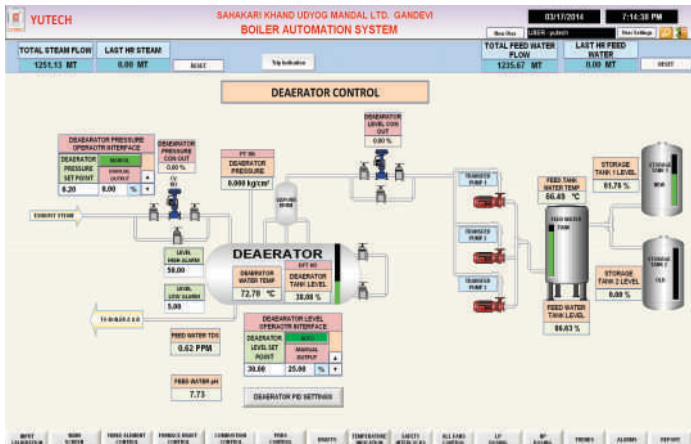


BAGASSE COMBUSTION CONTROL

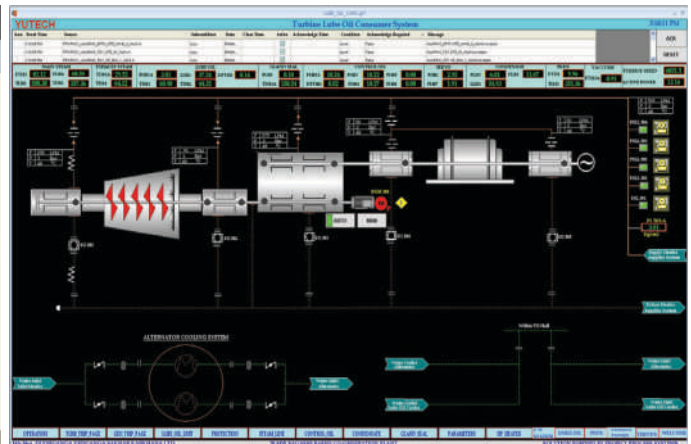
OIL FUEL CONTROLS

Please refer to our detailed Power Plant and Co-Gen Boiler Automation Presentation on [www.yutech.in](http://www.yutech.in)

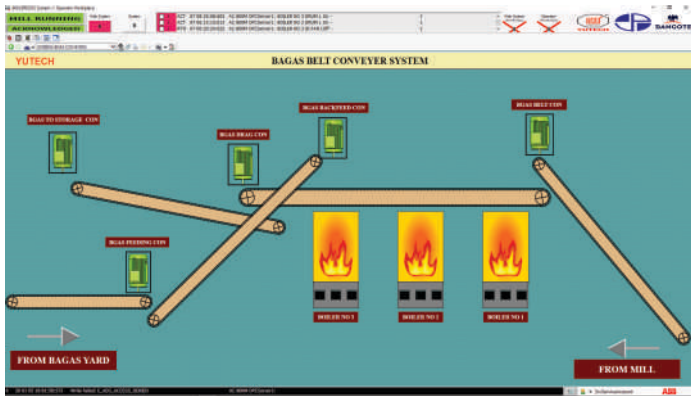




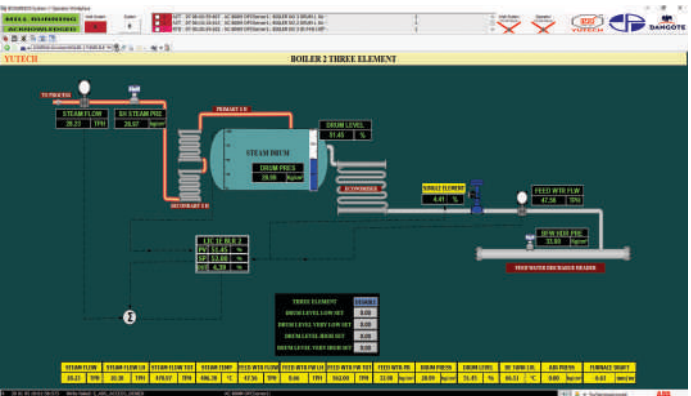
DE AERATOR CONTROL



TURBINE MONITORING



BAGASSE FUEL MANAGEMENT SYSTEM

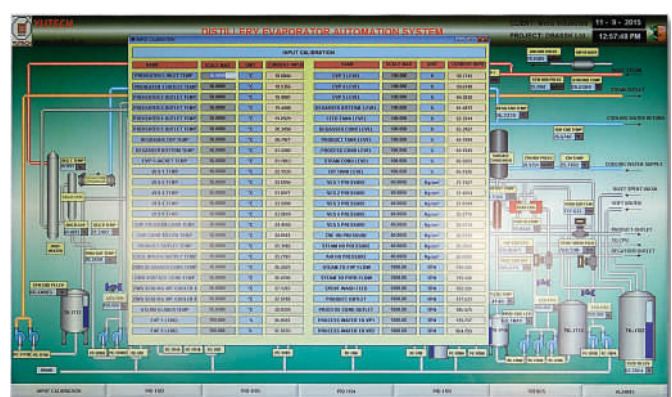
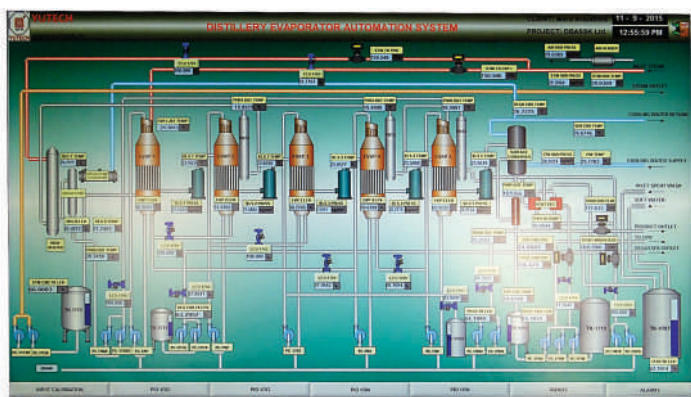


THREE ELEMENT CONTROLS

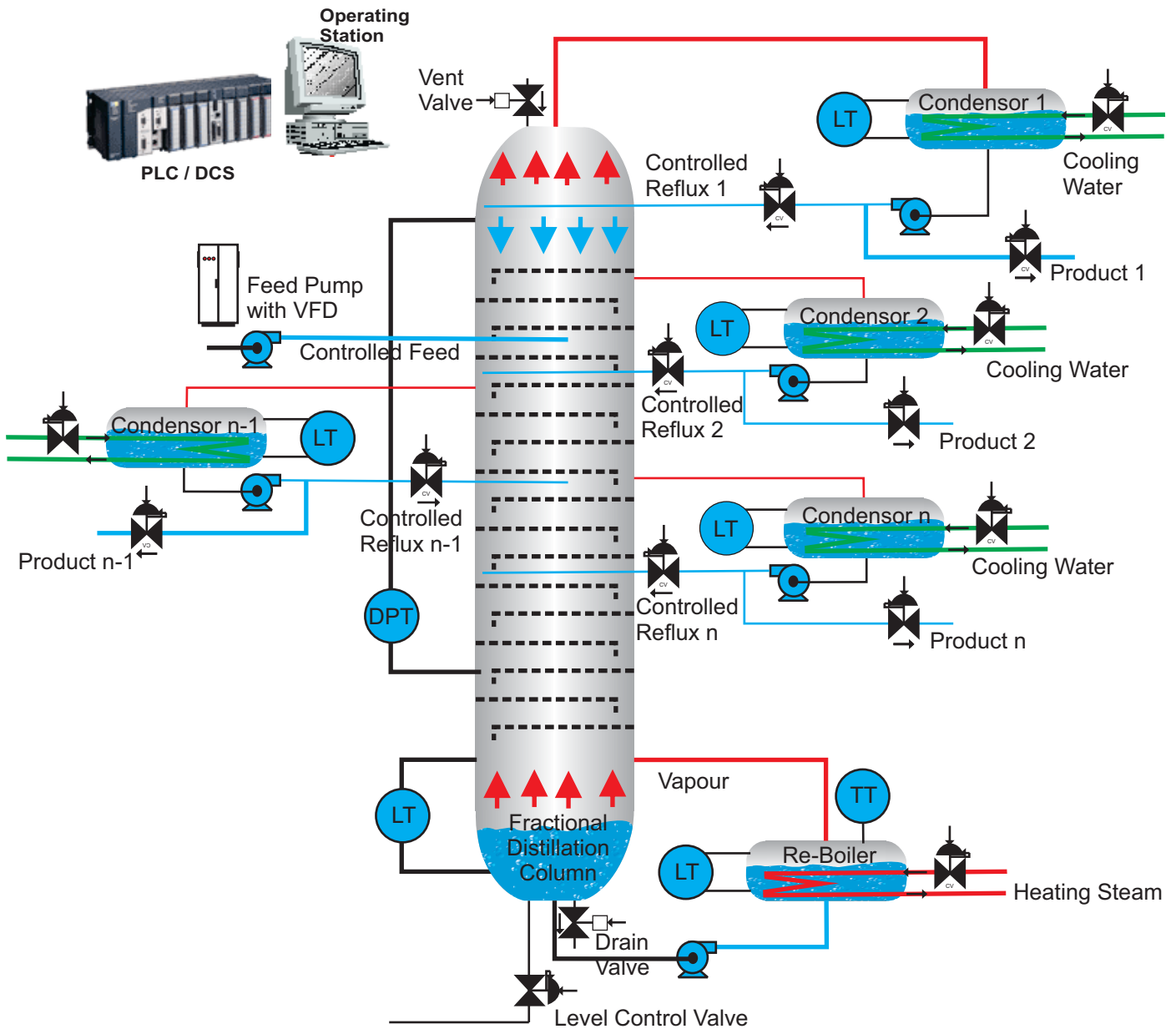
## DISTILLERY AUTOMATION:

Distillery Automation Ensures Higher Efficiency:

- Distillation Column Automation ensures Correct Heat & Mass Balance thus Constant Distillate Quality Consistently
- Improved Overall Heat Efficiency
- Improved Overall Mass Balance
- Constant Flowrates and Constant Steam and available Heating Media
- Fermentation and Maturation Monitoring with respect to Temperature and Brix improves Process Efficiency and Material Quality
- Distillery Evaporator Automation ensures High Evaporation Efficiency with Trouble-free Process Operations
- Distillation Column Automation ensures Constant Process Parameters Consistently



DISTILLERY EVAPORATOR AUTOMATION OVERALL



**Schematic Diagram of Distillation Column Automation**

### Distillery Automation:

- Heating and Level Control in Re-Boiler and Distillation Column
- Level Control in Distillation Column
- Constant Flowrates and Constant Steam mean Constant Process Media and Constant Heating Media hence even heating at all times
- Reflux Control for all Distillates at different heights as per requirement ensures better and efficient Distillation
- Draining and Venting Controls ensure smooth operation
- Controlled Material Intake ensures improved overall process efficiency
- Flow Sensing at various stages
- Level, Pressure and Temperature Sensing in Fertilization Tanks
- Complete Display as Mimic Diagrams in SCADA Screens



## AUTOMATION, INSTRUMENTATION & MECHANICAL SPARES SOLUTIONS FOR SUGAR COMPLEX - UNDER ONE ROOF

### The YUTECH ADVANTAGE:

#### Automation and Instrumentation System Integration:

- In-House Automation Panel Building and System Integration.
- In-House PLC-SCADA / PLC-HMI / DCS Project and System Design, Engineering, Software Development, Trouble Shooting and Testing.
- Dedicated and Highly Experienced Team of Engineers' for Erection, Commissioning and Servicing of Automation Systems and Instrumentation Systems.
- Dedicated Engineers Team to provide Online Support for Remote Trouble Shooting, Calibration and Fine Tuning
- Technical & Engineering back up for Overseas as well as Domestic Clients.
- Undertaking of Product and Software Designing, Engineering, Development and Implementation
- Undertaking of Project Designing, Engineering, Development, Documentation & Drawings and Implementation
- Undertaking of Project Designing, Engineering, Development, Documentation and Drawings for third parties
- Dedicated Engineers' Team for Automation and Instrumentation Engineering, Design, Drawing & Documentation.

#### In-house Instruments, Valves and Machine Manufacturing:

- In-House Electronic Equipment Manufacturing and Testing Facility, where we manufacture Industrial Electronic Instruments, Sugar Mill Process Instruments, Sensors, Controllers and other Electronic Devices.
- In-House Mechanical Facility for Machining, Fitting and Fabrication, where we manufacture CSD or Iris Valves.
- In-house Software Development at all Levels meaning Development in Micro Controller Assembly Language, C, C#.NET, VB.NET, SQL etc for our Electronic Equipment and Machines.
- Dedicated and Highly Experienced Team of Engineers' for Design and Manufacture of Embedded Electronic Systems.
- Dedicated and Highly Experienced Team of Engineers' for Design and Manufacture of Mechanical Equipment and Machines.

#### In-house Machine Shop to manufacture Mechanical Spares: (Please see our Sugar Mill Spares Brochure)

- CNC and Manual Lathe Machines
- CO<sub>2</sub> Welding Machines
- Shaping and Slotting Machines
- Vertical Milling Centre (VMC)
- Gas Torch Profile Cutting Machine
- CNC Laser Profile Cutting Machine

### YUTECH DIVISIONS:

**YU Technologies Pvt. Ltd.**, is a leading Sugar Instruments Manufacturer and Automation Systems Integrator with several Innovations to its name like Bagasse Moisture meter, IR DC Level Sensors, Brix Analyzers, CSD or Iris Valve, AutoCane Control System, Hall's Effect Type CBLS and TRL Sensors, Auto Mill Speed Control System etc.

**YUTECH** is a Brand under the Parent Company **YU Technologies Pvt. Ltd.** Brand **YUTECH** has Sub-Brands under which we Manufacture Diverse Equipment they are described as below:

**YUTECH Instruments** - Is a Manufacturer of Instruments, Controllers, Comm and I/O Cards, Sensors & Transmitters, Scanners, Liquid and Metal Analyzers and Galvanic Isolation Products.

**YUTECH Sugar Mill Process Instruments** - Is a Manufacturer of Sugar Factory and Refinery Specific Instruments and Analyzers.

**YUTECH Flow Controls** - Is a Manufacturer of Concentric Split Diaphragm also called Iris Valves.

**YUTECH Automation** - Is a Designer, Manufacturer, System Integrator & Supplier of Turnkey Automation Systems. We also provide Documentation, Consultation, Commissioning and After Sale Support & Maintenance Services, we further undertake Annual Maintenance Contracts of Automation and Instrumentation Systems.

**YUTECH Machines** - Is a Manufacturer of Special Purpose Machines for PCB and Food Industry our Full-Fledged Machine Shop also Manufactures Machined Mechanical Spares for Sugar Factories.

### YUTECH AUTOMATION - SYSTEMS AND PROJECTS UNDERTAKEN

- DCS/PLC based Turnkey Sugar Factory, Refinery, Power Plant and Distillery Automation and Instrumentation
- Complete Mill House, Sugar Process House, Condensor, Centrifugal Automation on PLC / DCS / Controllers
- Customized Automation and Instrumentation of any Process Industry, Foundry and Heat Treatment Plants, Food and Beverages Plants, Chemical Plants, Starch Plants, Pharmaceuticals, Incinerators and Machines
- Automation and Instrumentation Service and Maintenance Contracts for Sugar Factory, Sugar Refinery, Power Plant and Distillery and Process Plants.



**YUTECH**

## INVEST WITH YUTECH AND IMPROVE YOUR MARGINS

### THE YUTECH ADVANTAGE IS: ALL SOLUTIONS UNDER ONE ROOF:

YUTECH Provides all Specialized Sugar Mill, Sugar Process, Sugar Refinery, Boiler and Distillery Automation and Instrumentation Solutions, Researched, Developed and Implemented in Sugar Factory Environments of Indian, African and Asia Pacific Regions with an Experience of 42+ Years and 500+ Sugar Factories. YUTECH also manufactures Excellent Quality Mechanical Spare for Sugar Factories, our Slogan is Best Quality No Compromise.

### INVEST IN YUTECH PRODUCTS, AND ENSURE IMPROVED MARGINS:

- Increase, Stabilize and Sustain Consistent Milling or Crushing and Mixed Juice Flow to Process
- Reduce Maintenance Costs, Human Errors and Downtime
- Improve and Sustain Mill Extraction, while Reducing Bagasse POL and Bagasse Moisture
- Improve and Sustain Overall Plant Efficiency and Machine Life Cycle
- Improve and Sustain Sugar Quality, Grain Size and Colour hence better Sugar Price
- Measure Key Performance Indicators and Improve Key Result Area Parameters of all Sugar Milling and Manufacturing Processes through YUTECH Specialized Monitoring and Control Techniques
- Increase Throughput and Production with Same Mechanical Equipment with Improved Quality
- Highest Quality Mechanical Spares Ensure Increased Equipment Life Cycle and Reduced Downtime

### TO SUM IT ALL:

**SAVE FUEL, STEAM, WATER AND POWER - THUS SAVE MONEY YET INCREASE CARBON CREDITS**

**IMPROVE AND SUSTAIN PRODUCT QUALITY AND PRODUCTIVITY**

**THUS INCREASE AND SUSTAIN YEAR ON YEAR REVENUE..... SIMPLY PUT - MAKE MORE MONEY**

### REDUCED POWER CONSUMPTION

**COST SAVINGS AND HIGHER RETURNS ON INVESTMENT**



**LOWER MACHINE LIFE CYCLE COSTS**



**YUTECH**

**REDUCED DOWNTIME**



**PEACE OF MIND**



**SUSTAINED INCREASE IN QUALITY AND PRODUCTIVITY  
SUSTAINED INCREASE REVENUES AND PROFIT**



An ISO 9001:2015 Certified Company



Note: YUTECH reserves all rights to make any improvements and/or changes in any product or model as it deems fit from time to time.



**YUTECH**

### YU TECHNOLOGIES PVT. LTD.,

HO & Works: B8/5, Opposite Power Substation,  
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Sales: [sale@yutech.in](mailto:sale@yutech.in); [projects@yutech.in](mailto:projects@yutech.in)  
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