WEBENCH® Capacitive Sensing Designer

Design inductive sensing circuits

Agenda

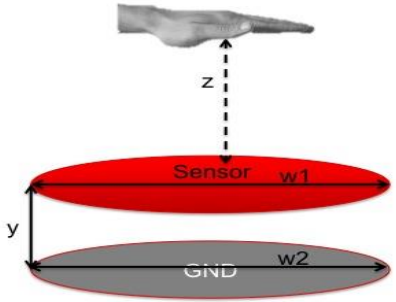
- Overview and selected Applications of FDC products
- Overview of WEBENCH Capacitive Sensing Designer (FDC) Tool
- Step by Step Walk-through
- Live Demo
- Q&A

FDC Products - Overview

- Concept
  - Uses Electric Field between the sensor plate and human body to determine presence of human hand.
  - Contactless.
- Selected Applications
  - Proximity sensing and gesture recognition, Liquid level sensing, collision avoidance, Rain and snow sensing etc.
- Advantages
  - Extremely high noise resolution (60X better than any existing solution)
  - EMI resistant architecture
  - High resolution (upto 28 bits)
  - Lower system cost (cheap sensor, just any conductor)

WEBENCH FDC Designer - Overview

- Focus on “gesture recognition”

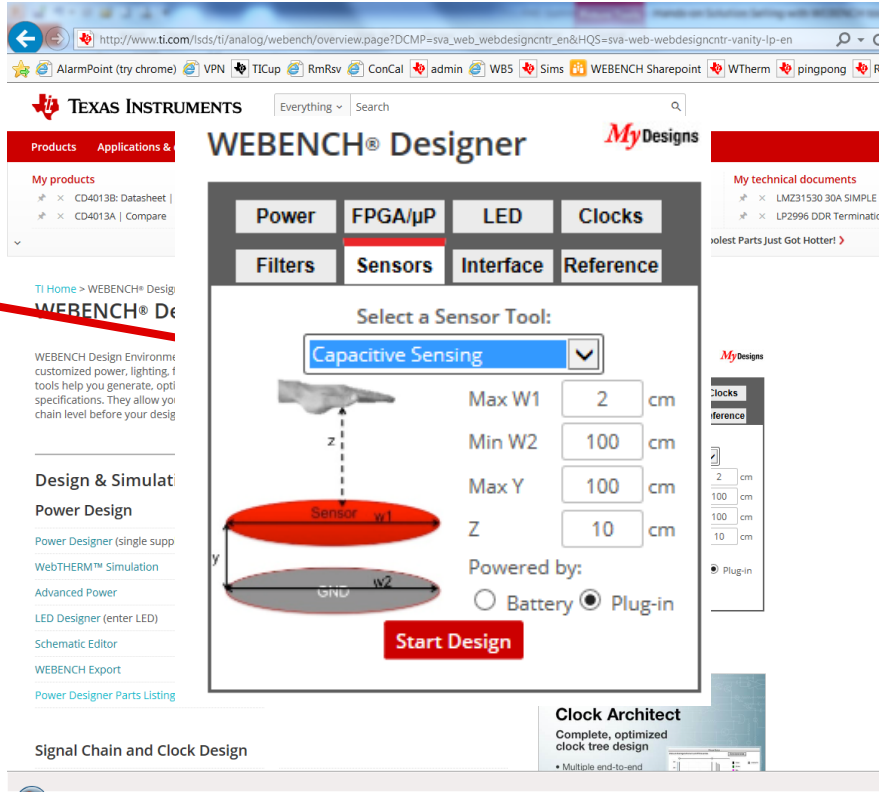


- Calculates all combinations of sensor configuration (W1, W2 and Y) and IC that satisfy user’s sensing distance requirement.
- Calculates sensing distance for user’s sensor configuration.

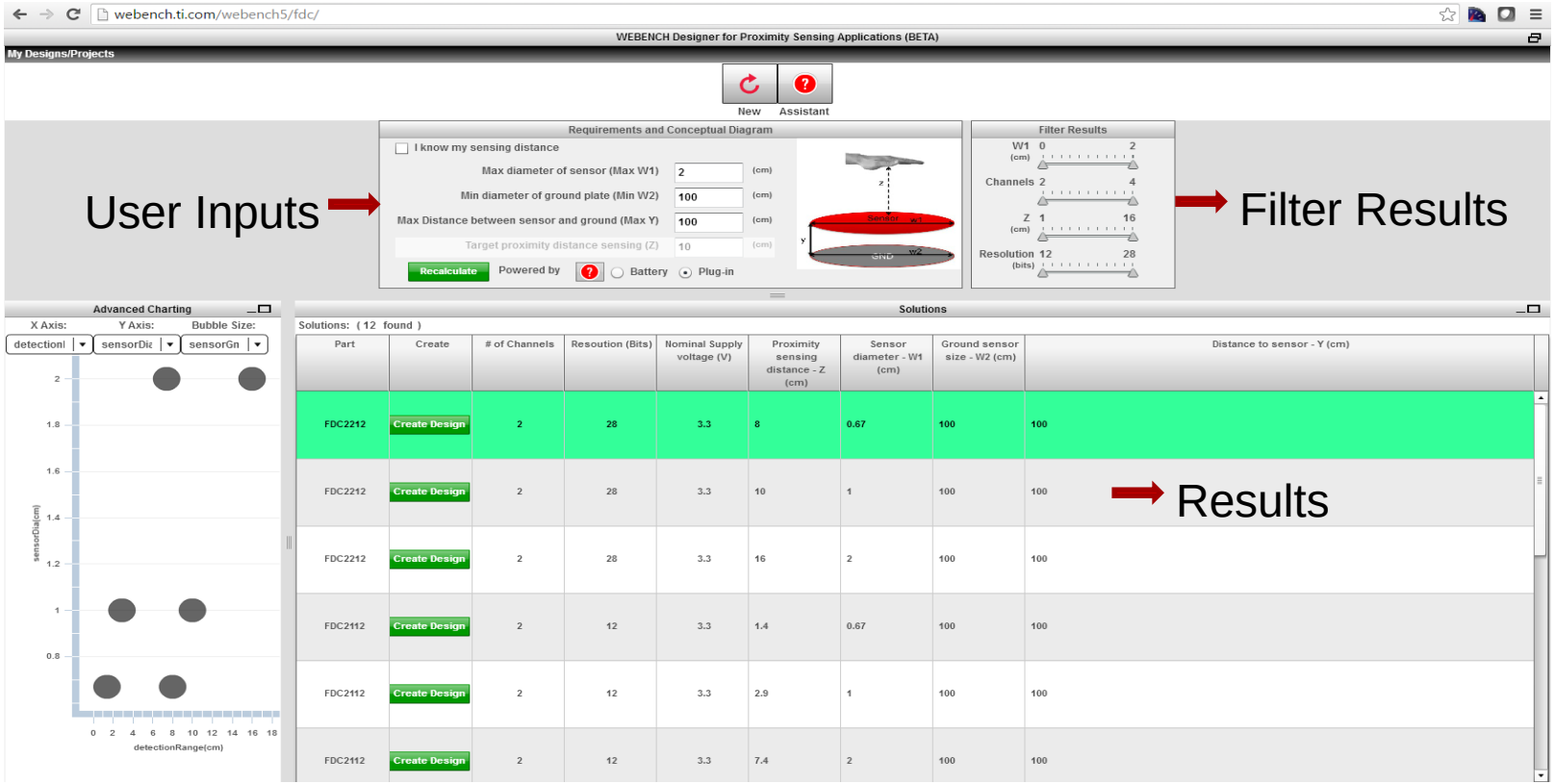
WEBENCH FDC Designer - Step By Step Walk Through

Launching FDC Designer

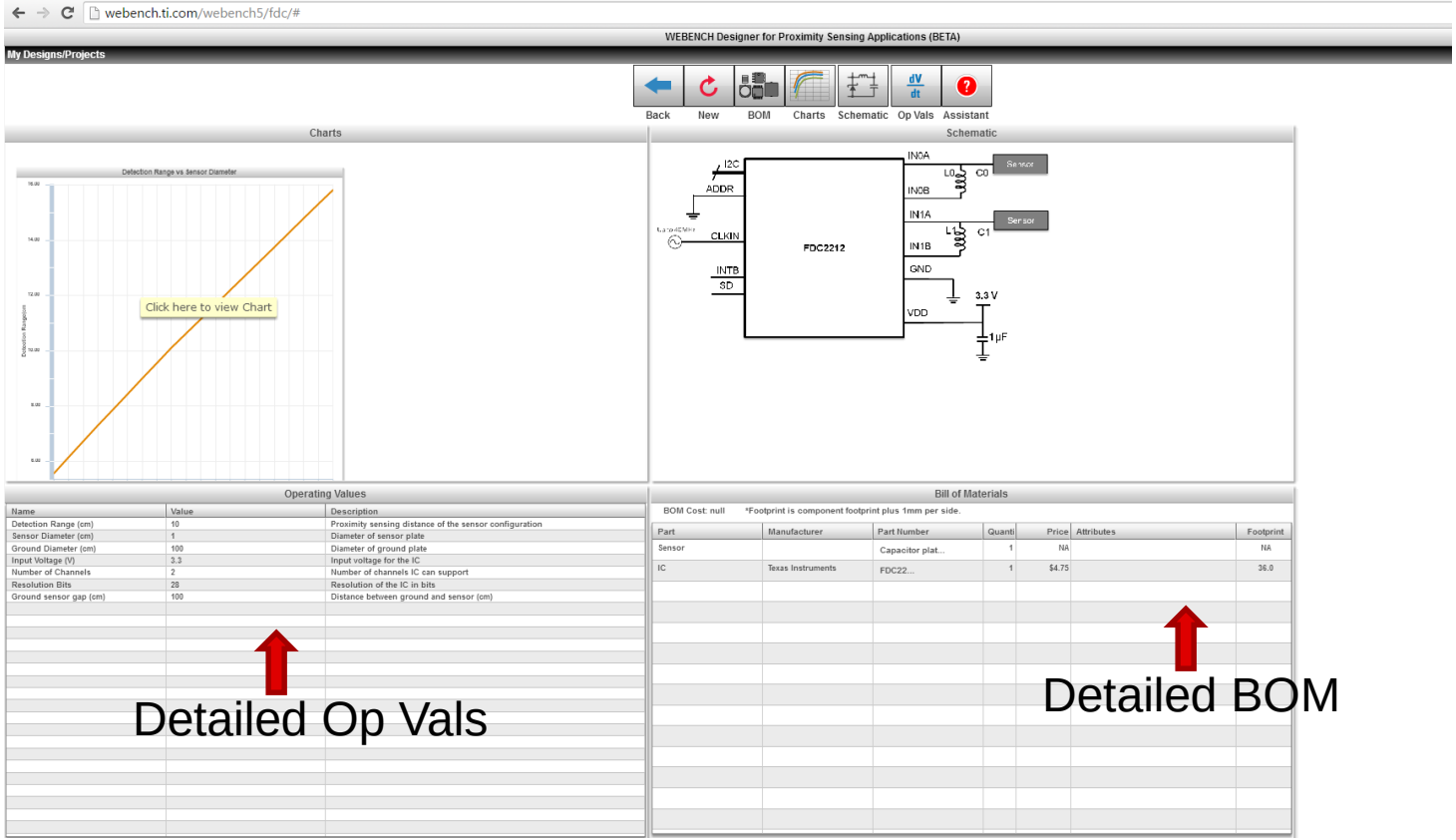
Go to ti.com and select Sensors on WEBENCH panel



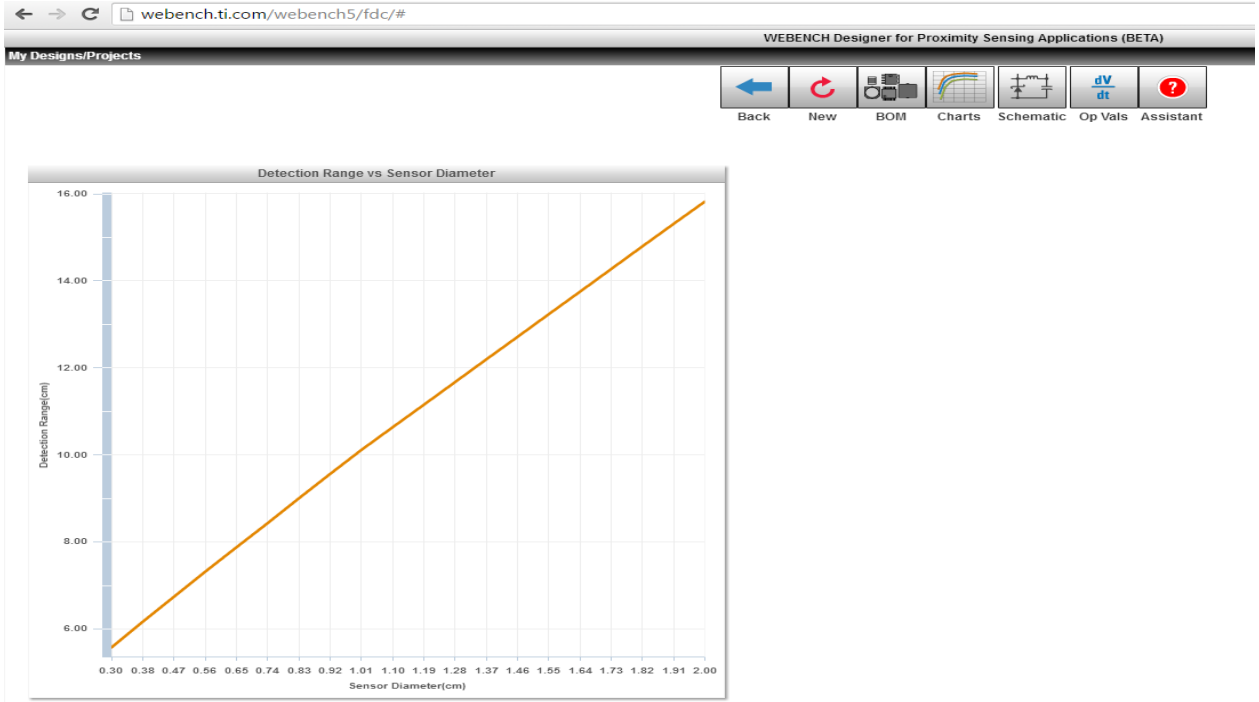
Step 1 – Sensor Solutions From User Input



Step 2 – Select Solution Based On Trade-Offs



Step 3 – Analyze performance from charts



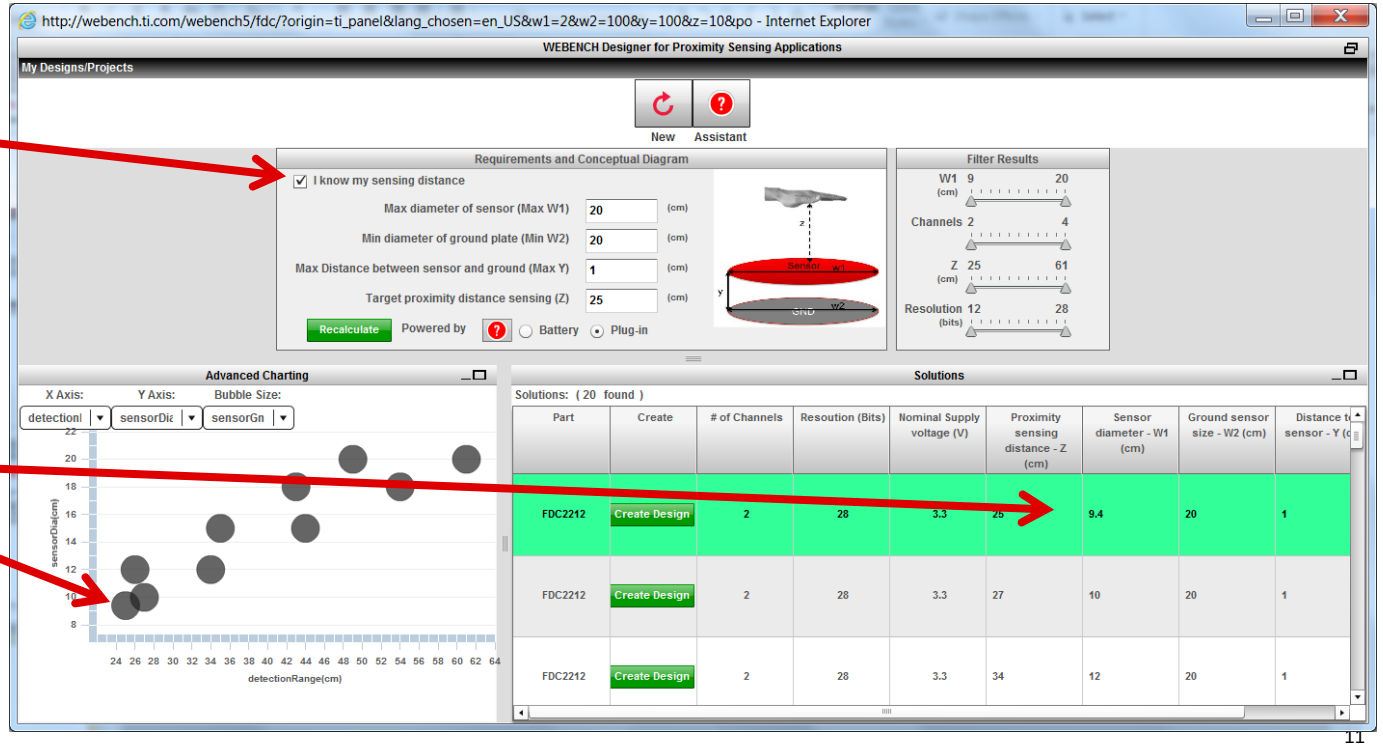
Example: Cap Sensing Designer

Design Problem:	Goal:
A movement detection system needs a sensor. The target sensing distance is 25 cm. Due to size restrictions of the detector, the maximum sensor diameter could be 20 cm and the maximum distance between the sensor and ground could be 1 cm. Assume ground diameter to be 20 cm. Assume a 2 channel device is sufficient and the system is powered by plug in.	Use FDC Designer to calculate smallest possible sensor required and the FDC IC that can achieve user requirements.

Cap Sensing Designer Example

I know my sensing distance

Sensor diameter: 9.4cm



Video Demo


WEBENCH® Capacitive Sensing Designer
Design tool for applications requiring proximity sensing, gesture recognition, liquid-level sensing
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