LESSON PLAN

Student age (13-15)

Stem class

Previous knowledge (basic physics -waves, electicity- and basic experience with arduino projects)

A.BE AN INVENTER (THE ART OF AN INVENTOR)

Talk about characteristics of an inventor (20 minutes)

Link: <https://www.invention-info.com/characteristics-of-the-best-inventors>

**B.UNDERSTANTING SOUND AND ULTRASOUND- USE THE PRESENTATION (POWER POINT)**

C. HOW TO MAKE A “PATENT”-ULTRASONIC REMOTE CONTROL - BY A MODIFIED ELECTRONIC DEVICE

1) UNDERSTANTING THE HC-SR04-MAKING THE BASIC DISTUNCE DETECTION CIRCUIT (1-2 HOURS)

TUTORIAL: <https://create.arduino.cc/projecthub/Isaac100/getting-started-with-the-hc-sr04-ultrasonic-sensor-036380> OR <https://www.instructables.com/id/Distance-Detector-1/>

3) UNDERSTANTING OUR NEEDS-ACTIONS-see this instructable.

First we need a transmitter that produces a signal constantly-see this instructable (20 minutes)

Second we need a receiver. Talk about the modification of hc sr04, covering the receiver module in order to receive only and not transmit, and construction-code etc -see this instructable (1 hour)

Possibilities i.e. –next project:The application of this “patent” by the student (13-15 years old,Gymnasio Vryswn): Smart city with clever traffic lights and clever gates that give priority to ambulance and more like city alerts of high or too low temp.

<https://github.com/nektarios25ma/GYMNASIO-BRYSWN2>