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| **Experimento focussing on Vocational Orientation**  **Arduino Pilot Workshop**  **Ghana 2020** | | | |
| **The following practical applications are available for a digital or face-to-face presentation at**  **EducataGhana , October 2020** | | | |
| **Experiment** | **Theme/Activities** | **Circuit / Model** | **Skills learned** |
| **Blinking LEDs** | * Using the Arduino app to install open source codes for Arduino applications * The research task: With how many images per second are individual images perceived as a film? |  | * Connections of LEDs to the Arduino via a breadboard. * Uploading codes from Arduino IDE to Arduino Uno * Understanding and changing the given code. * Exploring the perception of individual images or videos depending on the frequency |
| **Traffic Light**  **and**  **Demand traffic light** | * Construction of Traffic lights for one or more crossings * Construction of a Demand traffic light for pedestrians |  | * The pupils replicate a traffic light control. * The traffic light is switched at fixed time intervals. * The pupils expand the traffic light from the previous project into a demand traffic light. * The pedestrian traffic light switches to green whenever a button is pressed. * The students modify the sketch so that the switching sequence corresponds to a “real” traffic light. |
| **Distance measurement with**  **Ultrasonic sensor**  **for**  **reversing cars**  **and**  **glasses for blind people** | * An Ultrasonic sensor measures the distance to an object and shows the result via a display, a flashing LED or a buzzer. * The system is used in reversing systems for cars, but can also be used by blind people to orientate themselves when there are obstacles |  | * Adaptation of the code for the specific application of the measuring system * Application of technical solutions to everyday problems |
| **CO2 control/**  **Corona Alarm** | * Carbon dioxide control in closed rooms * Indoor climate and * **Corona Alarm System** |  | * Basic knowledge from science lessons enables the students to produce a **Corona Alarm System** for closed rooms. |
| **Irrigation System** | * With the support of a moisture sensor, an Arduino Uno controls a water pump to guarantee the necessary moisture in the soil. |  | * Compilation of parts that work together for a desired irrigation system. |
| **Solar Tracker** | * An Arduino uses light-sensitive sensors to control the most effective horizontal and vertical alignment of solar panels to the sun |  | * Producing a rotating tower with a 3D printer and integration of sensors and servomotors to guarantee maximum solar power |

Dieter Arnold, September 2020