Solar Energy

EV3 program description

In program "03", the Energy Meter measures the energy absorbed by the Solar Panel at 3-minute intervals (variable T), and outputs the amount of energy in joules on the EV3 Display. After each interval, the motor changes the angle of the Solar Panel to the light source by 45°. After the measurement at an angle of 180°, the Solar Panel is reset to the initial position at 0°.

Abbreviations used

MSR	Measurement - Measurement loop
DSP	Display - Output of values on the display
ALL	All values - Variable for total value
VAL	Value - Array in which all measured values are stored
T	Time - Variable for the measurement interval
ITR	Iterator - Variable for loop counter
TMP	Temporary Value
CAL	Calculation - Loop for calculating the current value in joules

Program summary

Start program

Press the EV3 Center Button; program starts with a beep (in program part A).

Exit program

Center button or Cancel button on the EV3 Brick (in program part D)
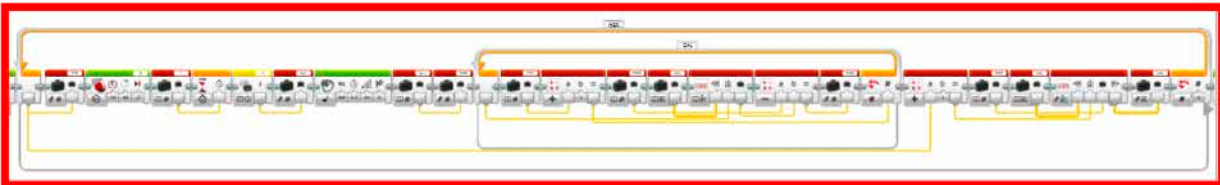
Program parts

Program part A

Before the first measurement interval, the rotation sensor is reset and the display is cleared.
In program part A, an initial measurement is taken of the amount of energy in joules.
The EV3 Brick signals the end of the measurement interval with a beep.
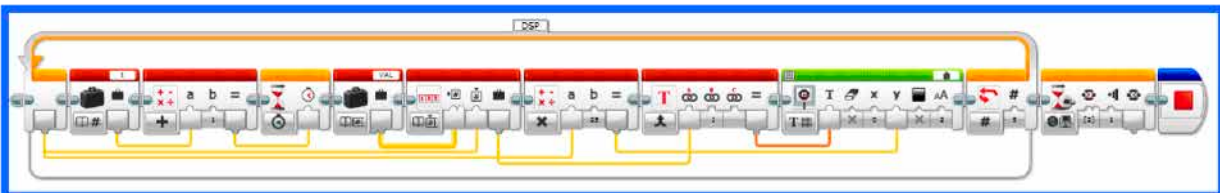
Program part B

Program part B conducts the remaining four measurements. The motor moves the Solar Panel by an additional 45° after each measurement interval. At the end of each measurement interval, the EV3 beeps.

Program part C
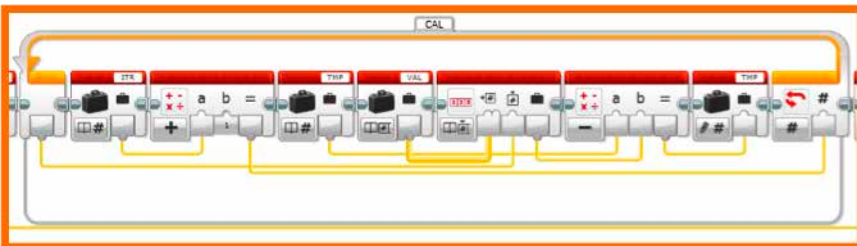
Program part C uses the previously measured amounts and the current amount of energy to calculate the difference, in joules, resulting from the current measuring process, and saves the value to variable TMP.

Program part D

Program part D retrieves the measured amount of energy from array VAL and outputs the values on the EV3 Display.