REX

REX EVOLUTION SERIES

SUPER STAR TRANSFORMERS

8 IN 1

mBlock

REX
Kod Blokları klavuzu V1.0

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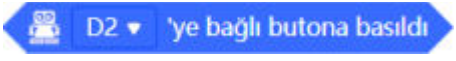
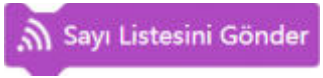
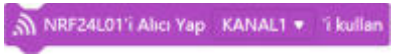
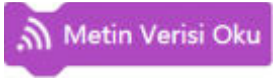
Pins Category
You can use the blocks in the category for the basic operations you can do with the pins of Arduino Nano.

Block	Description	Notes
	HIGH option is selected to give 5V voltage to Digital pins in the D2-D13 range, and LOW option is selected for 0V.	**Led burning, Relay on and off, Dc motor driving etc. used in transactions.**
	You can increase or decrease the effect of voltage in the range of 0V-5V by entering values in the range of 0-255 to the PWM pins 3,5,6,9,10,11.	**In RGB led applications, DC Motor Speed adjustment etc. used in transactions.**
	Analog pins in the A0-A7 range allow you to use PWM p n by entering values in the range of 0-255.	**In RGB led applications, DC Motor Speed adjustment etc. It is used in transactions.**
	Sets pins in the D2-D13 range as inputs. It can take value as 1 or 0, HIGH or LOW.	**Button, inline sensor, IR sensor, PIR sensor etc.**
	The electrical signal input from the pins in the A0-A7 range gives you the range of 0 -1023.	**Sound detection, rain detection, light detection, etc.**
	It is used to make a sound from the buzzer element connected to the digital pins in the D2-D13 range.	
	Digital pins D2-D13 read using the internal PULL_UP resistor. It is 1 if pressed, 0 if not.	**One leg of the button must be connected to GND.**

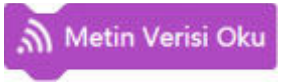
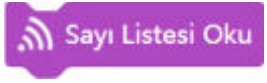
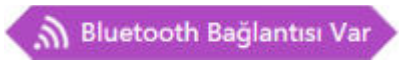
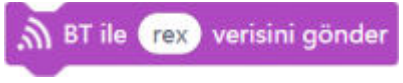
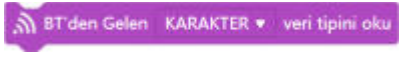
Communication Category

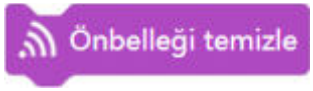
If you want to bring wireless communication technologies with 2.4Ghz wireless or Bluetooth to your robot, you can use the blocks in this category. In addition, Serial port blocks, with which you can communicate with a computer with a cable over the Serial port, are also included in this category.

Block	Description	Notes
	It is the identification block for the 2.4Ghz wireless connection module NRF24L01.	It is used only once in all code just below the event block.
	Sets the NRF24L01 wireless communication module as the sender.	The channel number in the option section must be the same as the channel number of the receiver module.
	It is a block that creates a list that can receive as many elements as will die from one to the next, which sends digital data wirelessly.	distance (cm), sound intensity, number of turns, etc. are used to transmit numerical values.
	The numeric value to be sent wirelessly is the block that passes the list variable.	Before that, the block "Creating a 1-element NUMBER list" should be used.
	It allows the number value assigned to the list variable to be sent wirelessly.	Wirelessly sends the generated number list.
	Used to send characters/character strings (words) wirelessly.	There is no Turkish character support. The character limit is 32.
	Sets the NRF24L01 wireless let sm module as a receiver.	The channel number in the option part must be the same as the channel number of the sender module.
	Informs the presence of the incoming message via 2.4 Ghz wireless connection.	It is used in conditional and loop blocks.
	It allows receiving the text type leds expected from wireless communication.	

Haberleşme Kategorisi

2.4Ghz wireless veya Bluetooth ile kablosuz haberleşme teknolojilerini robotunuza kazandırmak istiyorsanız bu kategorideki blokları kullanabilirsiniz. Ayrıca Seri port üzerinden kablo ile bilgisayarla iletişi kurabileceğiniz Seri port blokları da bu kategoride yeralmaktadır.

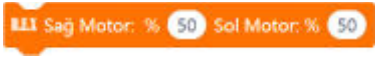
	**Wireless iletişim üzerinden beklenen Metin türündeki iletilerin alınmasını sağlar.**	
	**Wireless iletişim üzeriden alınan Metin türündeki veriyi taşır.**	**Öncesinde "Metin Verisi Oku" bloğu kullanılmalıdır.**
	**Wireless iletişim üzerinden beklenen sayısal veri tipini okur.**	
	**Wireless iletişim üzerinden alınan sayı listesindeki sayısal değerleri taşır.**	**Öncesinde "Sayı Listesi Oku" bloğu kullanılmalıdır. Eğer 1 tane değer gelmişse 0. değer okunmalıdır.**
	**Bluetooth iletişimi için HC06 modülünün tanımlamasını yapan bloktur.**	**Olay bloğunun hemen altında tüm kod içinde sadece 1 defa kullanılır.**
	**Bluetooth üzerinden gelen verinin varlığını bildirir.**	**Koşul ve döngü bloklarında kullanılır.**
	**Bluetooth bağlantısı ile karakter(harf) ,sayı,String(sözcük) gönderir.**	**Türkçe karakter desteği yoktur.**
	**Bluetooth ile beklenen veri türüne göre gelen iletiyi alır.**	**Ne türde veri bekleniyorsa seçenek kısmında o seçilmelidir.**
	**Bluetooth üzerinden okunan veriyi türüne göre taşır.**	

	**It erases the data cached while establishing a Bluetooth connection.**	
	**Block that initiates communication and sets the speed for sending and receiving messages from the computer's COM serial ports.**	
	**Send the fader what you will write to the COM(Serial port) port.**	**There is no Turkish character support.**

Motors

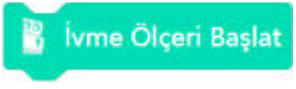
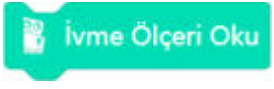
It is the category of blocks that allow you to control the Engines in your Robots.

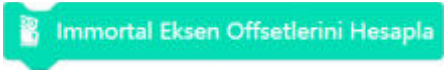
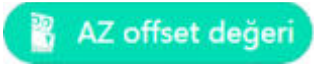
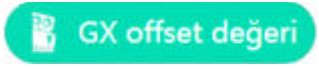
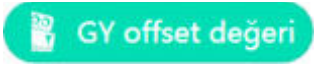
Block	Description	Notes
	**It is used to change the angles of servo motors connected to digital pins in the D2 - D13 range and analog pins in the A0 - A7 range.**	**You can give values between 0-180.**
	**You control the + and - ends of the DC motor on the right of the robot, you define the drivers and you define the speed control z is the block.**	
	**It is the block where you control the + and - ends of the DC motor on the left of the robot, where you define the driver pins and where you control the speed.**	

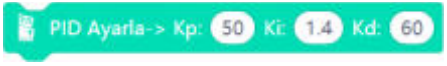
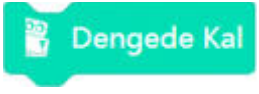
	It is the block where you set which movement the robot will make and at what speed.	There are sub-options as Forward g t, Back g t, Turn right and Turn left. If you give the power value n - (minus) values, the movement will reverse. You can find a value in the range of -100,100.
	It is the block that does it until the end of the duration you have chosen, and then stops the motors.	
	It is the block that allows you to control the Right and Left motor rotation direction and rotation speed separately.	What are the power values - (minus) values you can give.
	It stops the motors from running.	

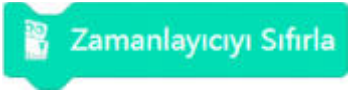
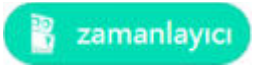
Sensors Category

Blocks where you can use MPU 6050, HCSR-04 LDR sensor and line recognition sensor are in this category. In addition, timer blocks are also included in this category.

Block	Description	Notes
	It is the block used to initialize the MPU 6050 Gyro sensor.	It is used only once in the entire code just below the event block.
	It is the block used to read the calculations of the accelerometer.	It is the block you need to use inside the loop.

	After the reading of the accelerometer, it gives the bending value at the axes.	It gives a value between 180,-180.
	Accelerometer gives acceleration values to the axes after reading it	Give values in the range of approximately -30000- 30000.
	It is the block that detects acceleration measures and tilt directions.	If the IC of the sensor has pins facing upwards, these directions are detected when connected with the LED facing forward towards you.
	It is the block that detects the direction in which the sensor is shifted, accelerated or moved.	
	HC SR04 It is the block that provides the definition of the ultrasonic distance sensor and the reading of the value as structure.	It gives a measurement value in float t o with a precision of one tenth of cm.
	It is used to get the offset to keep the Immortal balance robot in balance.	It takes 35-40 seconds to finish the work.
	It gives numerically the AZ value to be used in the balance process after the offset calculation process is completed.	
	After the offset calculation process is completed, it gives numerically the GX value to be used in the balance process.	
	After the offset calculation process is completed, it gives the NR value to be used in the balance process numerically.	

	After the offset calculation process is completed, it gives numerically the GZ value to be used in the balance process.	
	It is the block where the PID settings of the Immortal balance robot are made.	Kd is the part where the reaction speed against the value drops is adjusted.
	It is the block where the movement speed of the right and left motor is adjusted in balance calculations.	
	It is the block where the pins of the motors connected to the motor driver are set.	
	It is the block where pins are defined for speed settings of right and left motors.	
	It is the block in which the values we find while offsetting are processed.	You should write the offset values you have detected in the necessary places.
	It is the block that keeps the Immortal balance robot in balance.	
	It is a block that reads values between 0-1023 from analog pins in the pn range of A0-A7.	
	It is the block where the sensors in the 4 quadruple monitor module are defined.	Each of the 4 sensors should be used from this block just below the event block.
	Sensors n Black or white colors are the block that gives the detection status.	

	**It is the block used to reset the elapsed time when Rex is started.**	
	**A block that returns the amount of time in milliseconds that has elapsed since Rex started and the timer reset.**	

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