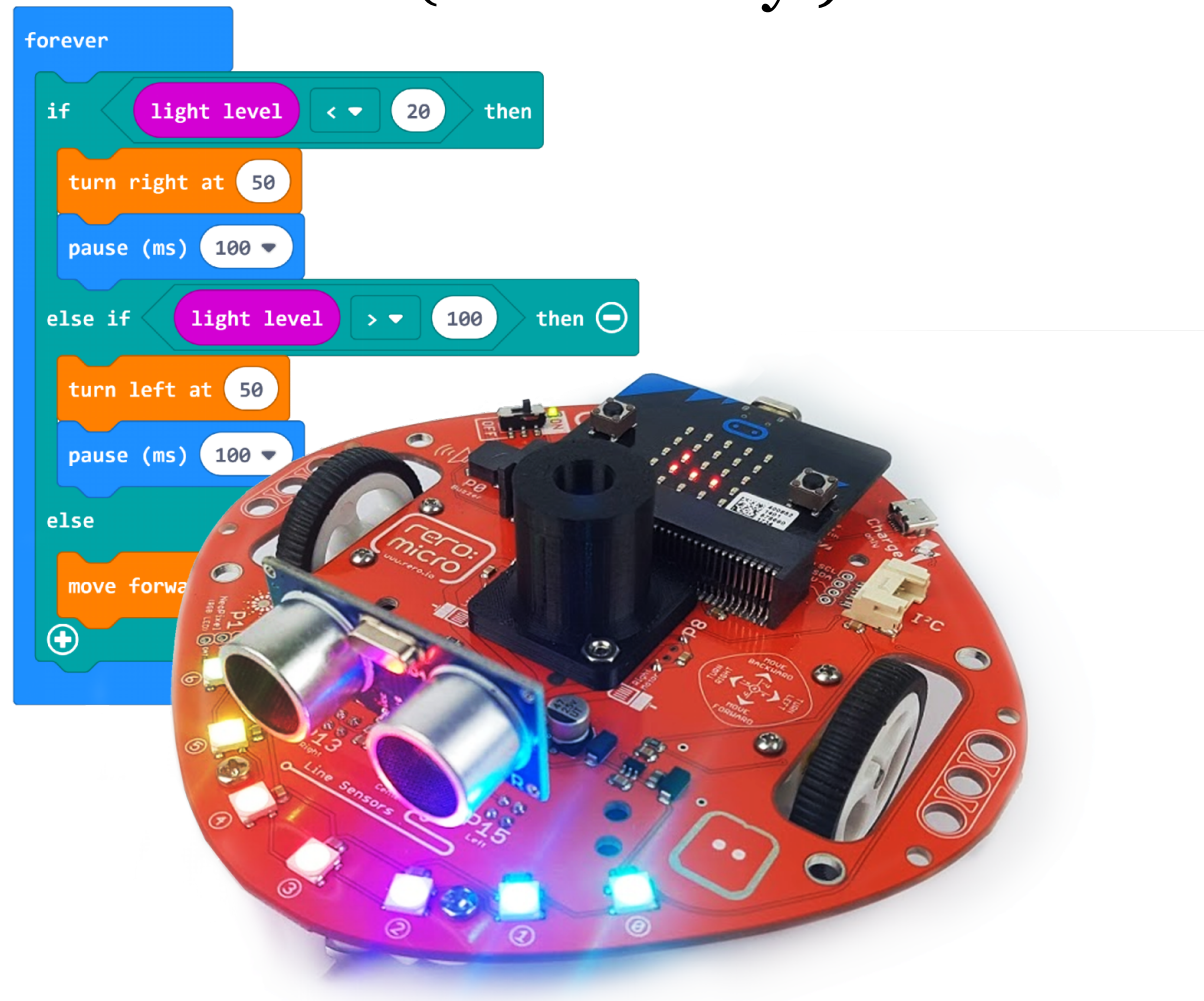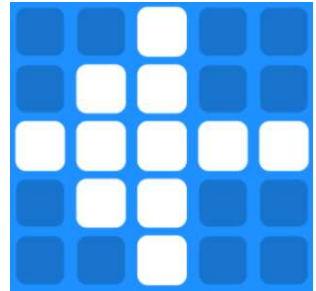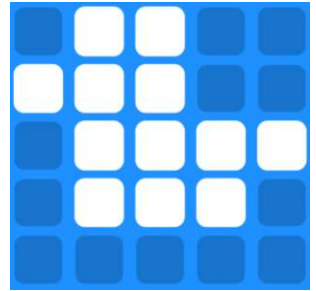# RAC'19 National Level
Live Coding Challenge with rero:micro
(Secondary)

Level 1 (20 points)

	Program your rero:micro to... / Aturcara rero:micro anda untuk...	
On Start	**Show this arrow on the LED matrix display.** Paparkan anak panah ini pada matriks LED.	
Forever	**Use "Basic : show leds" blocks to create an animation of the duck moving across the LED matrix display from the right to the left.** Gunakan blok-blok "Basic : show leds" untuk menghasilkan animasi itik pada matriks LED bergerak dari kanan ke kiri.	

Level 2 (20 points)

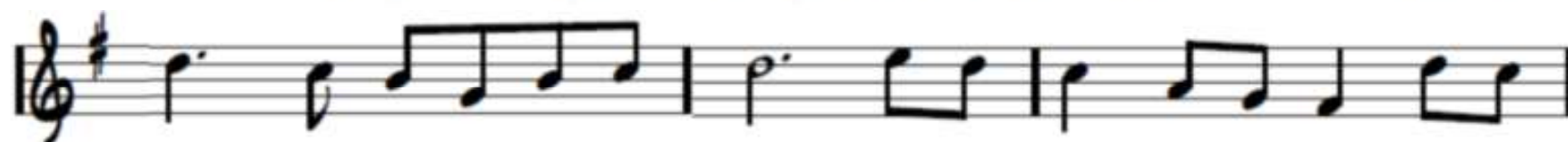| Program your rero:micro to... / Aturcara rero:micro anda untuk...	
On Start	**Display the heart icon.** Paparkan ikon bentuk hati.

Forever	i. **Light up the RGB LEDs...** Nyalakan RGB LED...
	    • **one by one** satu per satu
	    • **following this colour sequence - RED, ORANGE, YELLOW, GREEN, BLUE, INDIGO, VIOLET** mengikut urutan warna ini - MERAH, JINGGA, KUNING, HIJAU, BIRU, INDIGO, VIOLET
	    • **at 500ms intervals** setiap selang 500 ms
	    • **at brightness level 80** pada tahap kecerahan 80
	ii. **After all RGB LEDs are lighted up, create a running light effect for 10 seconds.** Setelah semua RGB LED telah dinyalakan, hasilkan kesan "running light" selama 10 saat.
	iii. **Turn off the RGB LEDs one by one.** Padamkan RGB LED satu per satu.

Level 3 (20 points)

Program your rero:micro to… / Aturcara rero:micro anda untuk…	
On Start	**Display the heart icon.** Paparkan ikon bentuk hati.
Forever	**Scroll text "MERDEKA!" across the LED matrix display** sentiasa memaparkan teks "MERDEKA!" pada paparan matriks LED.
On Button A Pressed	**Play the song "Tanggal 31 Ogos"** memainkan lagu "Tanggal 31 Ogos" **Light up the RGB LED strip in different colours according to the tone being played, as follows…** menyalakan strip RGB LED dalam warna berlainan mengikut nada yang sedang dimainkan, seperti berikut…

C	D	E	F#	G	A	B
RED	ORANGE	YELLOW	GREEN	BLUE	INDIGO	VIOLET

TANGGAL 31 OGOS

POP MARCH ♩ = 130

TANG GAL TI GA PU LUH SA TU BU LAN LA

PAN LI MA PU LUH TU JUH MER DE KA! MER DE KA! TE TAP

LAH MER DE KA I A PAS TI MEN JA DI SE JA RAH

Level 3 (20 points)

Lyrics / Lirik	Tang-	gal	Ti-	ga	Pu-	luh	Sa-	tu	Bu-	lan
Tone Nada	Middle D	Middle G	Middle D	Low B	Middle D	Middle G	Middle A	Middle G	Middle G	Middle B
Beat Rentak	1	1 ½	½	½	½	½	½	2	½	½
Colour Warna										

Lyrics / Lirik	La-	pan	Li-	ma	Pu-	luh	Tu-	juh	Mer-	de
Tone Nada	High C	High D	High C	Middle B	Middle G	Middle B	High C	High D	High E	High D
Beat Rentak	½	1 ½	½	½	½	½	½	3	½	½
Colour Warna										

Level 3 (20 points)

Lyrics / Lirik	ka!	Mer-	de-	ka!	Te-	tap-	lah	Mer-	de-	ka
Tone Nada	High C	Middle A	Middle G	Middle F#	High D	High C	Middle B	Middle B	Middle A	Middle G
Beat Rentak	1	½	½	1	½	½	1	½	½	½
Colour Warna										

Lyrics / Lirik	I-	ya	Pas-	ti	Men-	ja-	di	Se-	ja-	rah
Tone Nada	Middle D	Middle G	Middle B	High D	High D	High E	High D	High C	Middle B	Middle A
Beat Rentak	½	½	½	1½	½	½	½	½	½	3
Colour Warna										

Place your rero:micro and its packaging box on the track as shown. Susun rero:micro dan kotaknya di atas trek seperti yang ditunjukkan.

When the box is placed >1 cm away, rero:micro plays tone Middle C for 1/2 beat, lights up in RED and displays the letter "C".
Apabila kotak diletakkan pada jarak >1cm, rero:micro mainkan nada Middle C selama 1/2 beat, nyalakan RGB LED - MERAH dan memaparkan huruf "C".

When the box is placed >11 cm away, rero:micro plays tone Middle E for 1/2 beat, lights up in YELLOW and displays the letter note E.
Apabila kotak diletakkan pada jarak >11cm, rero:micro mainkan nada Middle E selama 1/2 beat, nyalakan RGB LED - KUNING dan memaparkan huruf "E".

Level 4 (20 points)

	Program your rero:micro to... / Aturcara rero:micro anda untuk...
On Start	**Display heart icon.** Memaparkan ikon bentuk hati.
Forever	**i. Light up in YELLOW and keep turning in the same spot when no obstacle is detected.** Nyalakan RGB LED - KUNING dan sentiasa berpusing setempat apabila tiada halangan dikesan. **ii. Light up in GREEN and keep moving forward when an obstacle is detected at 5cm-35 cm.** Nyalakan RGB LED - HIJAU dan terus bergerak ke hadapan apabila halangan dikesan pada jarak 5cm-35cm. **iii. Blink RGB LEDs in RED and remain stationary (or stop moving) when the obstacle is <5cm away.** Kedipkan RGB LED - MERAH dan kekal tidak bergerak (atau berhenti bergerak) apabila halangan dikesan pada jarak <5cm.
On Button A Pressed	**Show ultrasonic sensor reading.** Memaparkan bacaan sensor ultrasonik.

Level 5 (20 points)

Program rero:micro to be a "countdown timer" and a "score counter".
Program rero:micro untuk menjadi "pemasa undur" dan "kaunter skor"

Countdown Timer Pemasa Undur	**Score Counter** Kaunter Skor
On Button A Pressed i. **Display a heart icon, play melody "power up" one time and light up RGB LEDs in GREEN**. Paparkan ikon bentuk hati, mainkan melodi "power up" satu kali dan nyalakan RGB LED - HIJAU. ii. **Play tone Middle C for 1/8 beat and display number (countdown from 9, 8,...2, 1) every 1 second.** Mainkan nada Middle C untuk 1/8 beat dan paparkan nombor (secara undur dari 9, 8, ...2, 1) setiap 1 saat. iii. **Display a sad face icon, play melody "power down" one time and blink RGB LEDs in RED continually.** Paparkan ikon wajah sedih, mainkan melodi "power down" satu kali dan kedipkan RBG LED - MERAH secara berterusan.	**On Button A+B Pressed** i. **Set/reset Counter to 0.** Tetapkan/set semula Kaunter sebagai 0. ii. **Display Counter number on LED matrix.** Paparkan nombor Kaunter pada matriks LED. **On Button B Pressed** i. **Change Counter by +1.** Tukar Kaunter sebanyak +1. ii. **Display Counter number on LED matrix**. Paparkan nombor Kaunter pada matriks LED.