# Required Components

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| Mono-Kap K SeriesRed wire wrapped around a white spool. There is a small blue number 3 in the top left corner.An 3.5 mm mono jack and nut. This is used as an assistive switch jack.  There is a small blue 2 in the top left corner.*A remote controlled car on the right with its remote on the left. It is a cartoon looking car with bright colours and a little man riding inside.   There is a small blue 1 in the top left corner.*  **4**  **2**  **3**  **1** | **BOM**   1. Remote Controlled Cartoon Car 2. 2x 3.5mm mono jack and nut 3. 40 cm of wire 4. 2x 1000 pF (103) capacitor 5. 5x AA batteries |

# Required Tools

* Drill with ¼” bit
* Small flat head or Phillips screwdriver
* Flush cutters
* Wire strippers
* Soldering iron and solder
* Permanent marker

# Required Personal Protective Equipment (PPE)

* Safety glasses

# Assembly Instructions

## Step 1

From the backside of the remote, remove the screw for the battery cover (red circle). Remove the other 6 screws (yellow circles). Set aside these screws in a safe spot.

**1**

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| Line arrow: Rotate right with solid fillFront view of the remote for the remote controlled car.Back view of the remote for the remote controlled car. 6 screws are circled in yellow. |

## Step 2

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| Take apart the two halves of the remote Set aside the front half of the remote. | Two halves of the remote taken apart and sitting side by side. |

## Step 3

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| Remove screw holding down the circuit board, circled in yellow.  **NOTE:** set aside screw in a safe spot | Insides of the remote, showing only the back half that has the electronics. A screw is circled in yellow. |

## Step 4

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| Lift the circuit board off the pegs and flip it around to show the back. | Insides of the remote, showing only the back half that has the electronics. The circuit board has been removed and flipped around to show the backside. |

## Step 5

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| Cut 4 pieces of wire, approximately 10 cm each. | 4 wires, 2 are yellow and 2 are green. There is an arrow showing that the length of the wires is 6 cm.  **10 cm**  **3** |

## Step 6

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| Strip both ends of all 4 wires, approximately 0.5 cm. | Wire strippers with a yellow wire in them. An arrow is showing that 0.5 cm is being stripped off of both ends.  **0.5 cm** |

## Step 7

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| Wrap two wires on the two leads of the mono jack nearest the jack input.  Solder the wires to these leads.  Do not attach a wire to the third lead, furthest from the jack input.  Repeat for both mono jacks.  **CHECK:** make sure no solder or wires are connecting two of the leads of the mono jack. | Close with solid fillSoldering iron icon to indicate that soldering occurs at this step3.5 mm jack with two wires wrapped on the two leads nearest the jack input.  **2**  **X2** |

## Step 8

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| Solder the other ends of the mono jack wires to the circuit board on the two blobs of solder shown in the red circle.  These are the other side of the pins for the original switch.  **CHECK:** make sure no solder or wires are connecting the two solder blobs together. | Soldering iron icon to indicate that soldering occurs at this stepClose up of an circuit board. A mono jack is soldered to the circuit board and the location it is soldered is circled in red. |

## Step 9

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| Solder the second mono jack to the circuit board on the two blobs of solder shown in the red circle, on the right side of the board.  **CHECK:** make sure no solder or wires are connecting the two solder blobs together. | Soldering iron icon to indicate that soldering occurs at this stepA circuit board is shown with two mono jacks soldered to it. The board is circled where the right mono jack is soldered to the board. |

## Soldering iron icon to indicate that soldering occurs at this stepStep 10

**4**

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| Solder one of the capacitors to the two solder blobs circled in red in the photo.  These are located just above where the mono jack was soldered on the left side. | A close up of a circuit board, with a yellow ceramic capacitor on it, circled in red to show where it needs to be soldered on. |

## Step 11

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| With your flush cutters, trim the leads of the capacitor past where they were soldered. | A close up of a circuit board, with a yellow ceramic capacitor on it, circled in red, showing that the leads have been trimmed. |

## Soldering iron icon to indicate that soldering occurs at this stepStep 12

**4**

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| Repeat on the right side, solder the capacitor as shown circled in red, and trim the leads. | A close up of a circuit board, with a yellow ceramic capacitor on it, circled in red to show where it needs to be soldered on. |

## Step 13 – Stop and Test

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| Put batteries in both the remote and car and test using assistive switches plugged into the mono jacks. When you activate the assistive switch, the LED on the circuit board should light up. If the car is turned on, the assistive switches should imitate the original button functions.   * If LED / car does not turn on when switch is activated, check your connections * If LED / car stays on when not activating the switch, check your connections |

## Step 14

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| Using a permanent marker, mark where the holes are going to be drilled, above the screw holes and below the battery compartment, as shown circled in the photo.  Make sure these holes aren’t too close to the centre, so they would interfere with the blue piece on the other side. (See photo in next step) | Inside of the remote, showing two black dots circled in red. There is a red X between the two red circles. This is to show where to drill holes. |

## Step 15

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| Flip the remote around and check that where the holes were marked is not too close to the rotating blue piece. This piece is important for securing the battery compartment.  If needed, adjust the location of the drill holes by making a new marking. | Back of the green remote showing two drilled holes.  (In this photo the holes have already been drilled and are far enough away to not interfere.) |

## Step 16

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| Using a drill with a ¼ inch drill bit, drill two holes in the remote where you marked them in Step 14. | Inside of the remote, a close up of the location below the battery compartment. Two drilled holes are circled in red to show where they should be drilled. There is a red X in the middle to show where not to drill |
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## Step 17

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| Flip the circuit board around (so the top of the board with the LED is facing up).  Remove the nuts from the mono jacks and push the input of the mono jacks through the holes you drilled. | Inside of the remote showing a circuit board and two mono jacks installed in the bottom portion. The mono jacks are circled in red. |

## Step 18

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| Flip around the remote and reinstall the nuts onto the mono jacks. Tighten to secure.  Again, make sure the mono jacks do not interfere with the blue rotating part.  If the mono jacks do interfere you may need to cut the blue part with your flush cutters so that it can still rotate. | Back of the remote, close up view of the two mono jacks installed underneath the battery compartment. |

## Step 19

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| Flip the remote around and reinstall the screw that holds down the circuit board, shown in yellow.  Make sure no wires are being pinched. | Inside of the remote, with a yellow circle showing the screw that secures the electronics board |

## Step 20

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| Take the top half of the remote, facing down, and ensure the red and orange pieces are in the correct spots.  Then carefully take the back half of the remote and place it on top of the front half, lining up all of the screw holes.  Make sure no wires are pinched between the two halves of the remote.  Check that the white antenna wire (circled in red) is going through the proper channels. | Two halves of the remote, side by side, showing all the piece in their proper places. There is a circle around the white wire on the back piece showing the channel that the wire needs to go through. |

## Step 21

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| With the two halves together, replace all of the screws (circled in yellow) and tighten them fully.  Make sure there are batteries in the battery compartment and then rotate the blue piece into place and secure with the screw circled in red. | Back of the remote, reassembled. The screws that secure the remote halves together are circled in yellow. The screw for the battery compartment is circled in red. |

## Step 22 – Final Test

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| Plug assistive switches into the mono ports and test the remote again. Make sure the car is turned on.  Check if both the assistive switch and the original buttons both work and do the functions intended (forward and reverse).  **Note:** If the assistive switches worked properly at Step 13, but are now either not turning on or are staying on, you may have a loose connection. Open the remote back up and check. | Back of the remote with two assistive switches plugged into the mono jacks. |

## Step 23

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| If your switch adapted remote works as expected, you are finished! | Remote controlled car and remote. The car is on the left and the remote is on the right. The car is cartoon looking with a small man inside. The remote has been switch adapted and has two assistive switches coming out of it. |