**Projeto – WatchDuino**

**Descrição:**

Construir um Smartwatch usando um Arduíno e um modulo Bluetooth para ligação com uma app android. Este relógio de pulso possui uma estrutura totalmente impressa em 3D, de forma a tornar o relógio mais elegante e menos bulky, a “maquina do relógio” não fica apenas colocada na caixa do relógio mas sim espalhada pela bracelete, onde cada elo é um componente, sendo por isso uma bracelete modular.

**Funcionalidades:**

* Apresentar o tempo e sincronização do tempo com o telemóvel quando ligado por Bluetooth a este.
* Alarme, cronometro.
* Notificar visualmente e através do vibrador cada vez que é recebida uma notificação no telemóvel, isto é cada vez que é recebido um SMS, chamada, mensagem no WhatsUp, mensagem no FB Messenger, notificação do calendário, etc…
* Mostrar a metrologia, usando a App do telemóvel, como ponto de ligação à internet e a API do website metrológico
* Apresentar eventos do calendário e a localização dos mesmos, por exemplo podia apresentar a localização da próxima aula.
* Visualizar o tempo que demora a vir o próximo autocarro, através da ligação a API da Carris (vamos ver se é possível)
* Controlar a música a ser reproduzida no telemóvel (vamos ver se é possível)
* Permitir que os utilizadores pudessem facilmente adicionar novas funcionalidades ao relógio através da instalação de pseudo-apps na nossa app do relógio (difícil de fazer, mas era brutal)
* ... (endless possibilities) …

**Lista de Material:**

* Arduino mini pro 3.3V 8MHz - [Comprar](https://www.aliexpress.com/item/Free-Shipping-1pcs-pro-mini-atmega328-Pro-Mini-328-Mini-ATMEGA328-3-3V-8MHz-for-Arduino/32342672626.html?spm=2114.search0104.3.9.4193bbc1bqLsTW&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=0219f591-11d8-4f92-a9ad-4170ae7a7679-1&algo_pvid=0219f591-11d8-4f92-a9ad-4170ae7a7679&priceBeautifyAB=0) 1.78€
* TP4056 Micro USB LiPo charger 5V 1A - [Comprar](https://www.aliexpress.com/item/1PC-LOT-TP4056-1A-Lipo-Battery-Charging-Board-Charger-Module-lithium-battery-DIY-Mini-USB-Port/32243680214.html?spm=2114.search0104.3.71.6be3243f6oJNoM&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=b0aea630-6626-4066-9cf6-94498a003d48-13&algo_pvid=b0aea630-6626-4066-9cf6-94498a003d48&priceBeautifyAB=0) 0.23€
* Lipo Battery 250mah - [Comprar](https://www.aliexpress.com/item/Eachine-E57-JJRC-H49-3-7V-250mAh-Rechargeable-Lipo-Battery-RC-Quadcopter-Camera-Drone-Spare-Parts/32845130769.html?spm=2114.search0104.3.100.21803781qGTfWc&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711220_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620-10152_10151,searchweb201603_25,ppcSwitch_5&algo_expid=6d03e606-9a47-45db-961e-a40e679818ea-15&algo_pvid=6d03e606-9a47-45db-961e-a40e679818ea&priceBeautifyAB=0) 2.48€
* HM-10 Bluetooth 4.0 UART transceiver - [Comprar](https://www.aliexpress.com/item/HM-10-cc2541-4-0-BLE-bluetooth-to-uart-transceiver-Module-Central-Peripheral-switching-iBeacon-AirLocate/32650378913.html?spm=2114.search0104.3.141.5796d156Lc8hPH&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620-10152_10151,searchweb201603_25,ppcSwitch_5&algo_expid=6ff84bbd-0cc8-4744-85a3-761e4eec3986-20&algo_pvid=6ff84bbd-0cc8-4744-85a3-761e4eec3986&priceBeautifyAB=0) 1.20€
* 0.96" 128x64 OLED Display I2C - [Comprar](https://www.aliexpress.com/item/1pcs-0-96-white-0-96-inch-OLED-module-New-128X64-OLED-LCD-LED-Display-Module/32639731302.html?spm=2114.search0104.3.8.79872073anRAsG&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=f44c54de-7ba7-4b1f-a8d3-f934ca6a0f74-1&algo_pvid=f44c54de-7ba7-4b1f-a8d3-f934ca6a0f74&priceBeautifyAB=0) 1.98€
* Flat coin Vibration motor 60mA 3V - [Comprar](https://www.aliexpress.com/item/DC-3V-60mA-9000-2000RPM-Phone-Coin-Flat-Vibrating-Vibration-Motor/32827056358.html?spm=2114.search0104.3.82.5bae434asqcYZT&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=51bb4a5b-fff6-4262-a4d6-aa1d72984605-12&algo_pvid=51bb4a5b-fff6-4262-a4d6-aa1d72984605&priceBeautifyAB=0) 0.52€
* 12mm piezo buzzer speaker - [Comprar](https://www.aliexpress.com/item/10PCS-12mm-Piezo-Elements-Sounder-Sensor-Trigger-Drum-Disc-wire-copper/32819043217.html?spm=2114.search0104.3.159.3c40462aqXfaSK&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=5963a98b-6696-4b08-a741-6783a1ea9434-23&algo_pvid=5963a98b-6696-4b08-a741-6783a1ea9434&priceBeautifyAB=0) 0.73€
* 4 x SMT 3\*6\*2.5 MM Tactile Push Button - [Comprar](https://www.aliexpress.com/item/50pcs-SMT-3-6-2-5-MM-Tactile-Tact-Push-Button-Micro-Switch-Momentary-2-Pins/32787568191.html?spm=2114.search0104.3.115.368b5c92bbaNzw&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=5ce2e3b3-f781-4dc6-be52-093da7ca1725-17&algo_pvid=5ce2e3b3-f781-4dc6-be52-093da7ca1725&priceBeautifyAB=0) (O artigo que eu escolhi já traz 50 destes) 0.79€

Para desenvolvimento, ou seja, material que não vai estar presente no produto final mas que é necessário para o desenvolvimento do projecto:

* ~~HM-10 Bluetooth 4.0 UART transceiver with logic level translator -~~ [~~Comprar~~](https://www.aliexpress.com/item/Free-Shipping-2SK1544-TO3PL-new-and-original-10pcs-lot-in-stock/32219197792.html?spm=2114.search0104.3.113.5796d156Lc8hPH&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_5711215_10313_10059_10534_100031_10103_10624_10623_443_10622_10621_10620-10152_10151,searchweb201603_25,ppcSwitch_5&algo_expid=6ff84bbd-0cc8-4744-85a3-761e4eec3986-16&algo_pvid=6ff84bbd-0cc8-4744-85a3-761e4eec3986&priceBeautifyAB=0) (Posso usar o modulo Bluetooth 2.0 que temos ai) 1.66€
* USB to UART (TTL) Serial Converter [Comprar](https://www.aliexpress.com/item/CJMCU-CP2102-MICRO-USB-to-UART-TTL-Module-6Pin-Serial-Converter-UART-STC-Replace-FT232-NEW/32801557756.html?spm=2114.search0104.3.22.36903f71QDp6CU&ws_ab_test=searchweb0_0,searchweb201602_2_10152_10151_10065_10344_10068_10342_10343_10340_10341_10696_10084_10083_10618_10304_10307_10301_10313_10059_5711218_10534_100031_10103_10624_10623_443_10622_10621_10620,searchweb201603_25,ppcSwitch_5&algo_expid=5641c564-8358-4a72-8126-9af81ca796e4-3&algo_pvid=5641c564-8358-4a72-8126-9af81ca796e4&priceBeautifyAB=0) 0.85€

Total: 12.22€

**Referencias:**

* <https://hackaday.io/project/7244-watchduino2>
* <https://coconauts.net/projects/watchduino2/>
* <https://github.com/coconauts/watchduino2>
* <https://github.com/coconauts/watchduino2-companion-app>
* <https://www.tinkercad.com/things/0enU2XIDTaP#/> (infelizmente acho que o desenho 3D do relógio já não está acessível, mas para alem de podermos sempre desenvolver isso, posso tentar contactar os responsáveis pelo projeto original)

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