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| **DEVICE** | **FUNCTIONALITIY** |

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| **A** | ACTUATORS | The actuators (servo motors) are used to adjust the choke and the gas of the chainsaw. |
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| **B** | BATTERY CHARGER | Device from “Voltcraft” to reuse the Li-Po Battery. |
| BOX | 3D printed part to accommodate all possible electrical parts. |
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| **C** | CHAINSAW | The device we have to control.  The special task is that our project has to be designed for different sizes of chainsaws without making big adjustments. |
| CLAMPS | Mechanical, screwable parts for fixing the engined device at the top of the T-Nut plate. |
| CABLE GLANTS | Inlets and outlets for the electrical box, PG9 size:  secures circuits from humidity, stress, increase overview. |
| CORD HOLDER | 3D printed part to fix the connector housings for the servos. |
| **D** | DC VOLTAGE REGULATOR | Supply from the Li-Po battery need to be drop down separately to the required voltage for Raspberry Pi and Relaymodule/Servo. |
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| **E** | BATTERY INDICATOR | Display the current battery available.  Important for safety issues. |
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| **E** | EMERGENCY STOP BUTTON | An emergency button that is intended to cut off all the voltage supplied to the machine and to stop the programming. |
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| **F** | FREQUENCY TO BINARY CONVERTER CIRCUIT | The previous project developed a circuit, which can read out the frequency from the chainsaw’s ignition coil and translate it into an input signal that is readable by the Raspberry Pi. |
| FILAMENT (BLACK) | Synthetic material for fused deposit modelling (FDM) 3D printing. |
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| **L** | LI-PO BATTERY | Use to power up the Raspberry Pi and servomotor. |
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| **M** | MAIN SWITCH | Switches power supply to the battery for ALL components.  Attached at the side of the electrical box for easy handling. |
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| **P** | PLUGS | 3 –poled connector with round layout.  Easy access to servos by screwable housings.  Withstands humidity and stress. |
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| **R** | RASPBERRY PI | A single board computer uses to communicate and control to other devices, such as the signal coming from the chainsaw is translated to RPM value. Input signal received from GUI is used to control the Chainsaw. |
| RELAY MODULES | We use the control circuit from the Raspberry Pi at the Relay Modules to switch on higher currents, because the currents from The Raspberry Pi isn’t high enough to control the Actuators. |
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| **S** | SENSOR CLIPS | Pliers to grab the ignition signal from the engine to the converter circuit. |
| SCREWS | Standardized Systems:  M8 Screws and Threads for the T-Nut Plate.  M3 Screws and Threads for the electrical box.  M2,5 Screws and Threads for the electrical components (built-in). |
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| **T** | T-NUT PLATE | Aluminium Plate 800x600x20 mm to fix the whole system. |
| T-SLOT NUT | Special T-Nuts with M8 threads to improve flexibility. |
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