Esperto Smartwatch

F17-1170

Esperto Team WEEF Proposal

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Description of Proposal

The Esperto Smartwatch team is a brand-new student design team whose goal is to design and prototype a new state of the art smartwatch from the ground up. A large interest in our team and an overall interest in developing wearable technologies from the student community has grown our team from 2 founders to a small team of 12 dedicated and passionate Waterloo Engineering students. On this team, students are able to work independently or cooperatively on a feature of the watch such as wireless communication or heartrate data collection, come together at the end of the week and show it off to the rest of their teammates. If approved, their feature will be implemented into the next iteration of the Esperto smartwatch.

The Esperto team is asking WEEF for funding pertaining to purchasing hardware components to build future prototypes for students to engage with and build upon. These components include microcontrollers, displays, batteries, sensors, 3D prints, PCB's, prototyping boards, and SD card, charging, and Bluetooth modules. The teams end-term goal is to build at least 3 functioning smartwatches in addition to the current prototypes already purchased and designed by the team. These prototypes will be enabled with features such as Bluetooth communication, accelerometers, PPG sensors, and other modules for battery charging and display.

Proposal Benefits

Unlike many traditional design teams, students on the Esperto team are given the opportunity to not only choose what they get to work on, but actually develop and take ownership of the feature they have worked on. Students are able to use the knowledge they learned in previous courses and work terms, but also explore new avenues and skills in concepts which they had never worked with before.

Over the last 3 months, money was raised to purchase the hardware for the first two iterations. The team is asking WEEF for sponsorship in order to be able to continue their hard work on the next iterations of the Esperto smartwatch. Furthermore, funding from WEEF will result in more prototypes being readily available for students to work on. Currently, the team only has 2 functioning prototypes resulting in team members having to wait to attempt to implement and test their feature into the final solution. Funding would resolve this problem and also allow team leads to pursue and recruit more Engineering students, allowing more talented students to have the opportunity to experiment and build upon their own smartwatch and join the Esperto team!

Estimated Equipment Lifetime

6 months for most components. Some components will be reusable such as the microcontrollers and can last up to a year.

Implementation Schedule

Components are cheaper when bought in batch due to reduced shipping fees and therefore, will all be purchased immediately once funding is approved.

Additional Information

Cost Breakdown for one prototype:
Atmel Processor

Bluetooth module
SD card module + SD card
Battery Charging Module
Display
Accelerometer
PPG Sensor (SEN-11574)
500mAh LiPo Battery
3D printed case
Printed circuit board and components
Prototype boards

*Overall, each prototype will cost $150 - $200.

Funding Options:
Option 1 – Build all 3 prototypes
Option 2 – Build 2 prototypes
Option 3 – Build at least 1 prototype

Cost Breakdown

Item	Option1	Option2	Option3	Option4
Display	$ 45	$ 30	$ 15	$ 0
Accelerometer	$ 36	$ 24	$ 12	$ 0
Battery	$ 30	$ 20	$ 10	$ 0
PCB and Components	$ 100	$ 70	$ 40	$ 0
3D Prints	$ 60	$ 40	$ 20	$ 0
PPG Sensor	$ 70	$ 50	$ 30	$ 0
Atmel Processor	$ 40	$ 30	$ 20	$ 0
SD Card and Module	$ 24	$ 20	$ 16	$ 0
Battery Charging Module	$ 27	$ 20	$ 13	$ 0
Bluetooth Module	$ 40	$ 30	$ 20	$ 0
Prototype Boards	$ 12	$ 9	$ 6	$ 0
Total	**$ 484**	**$ 343**	**$ 202**	**$ 0**