# Software to identify butterflies species through their images

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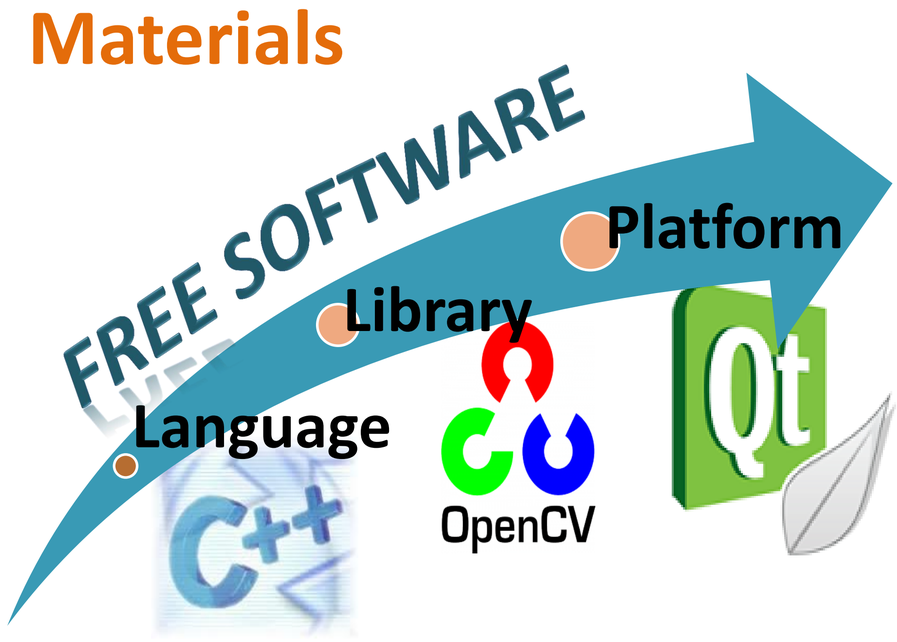
## Abstract

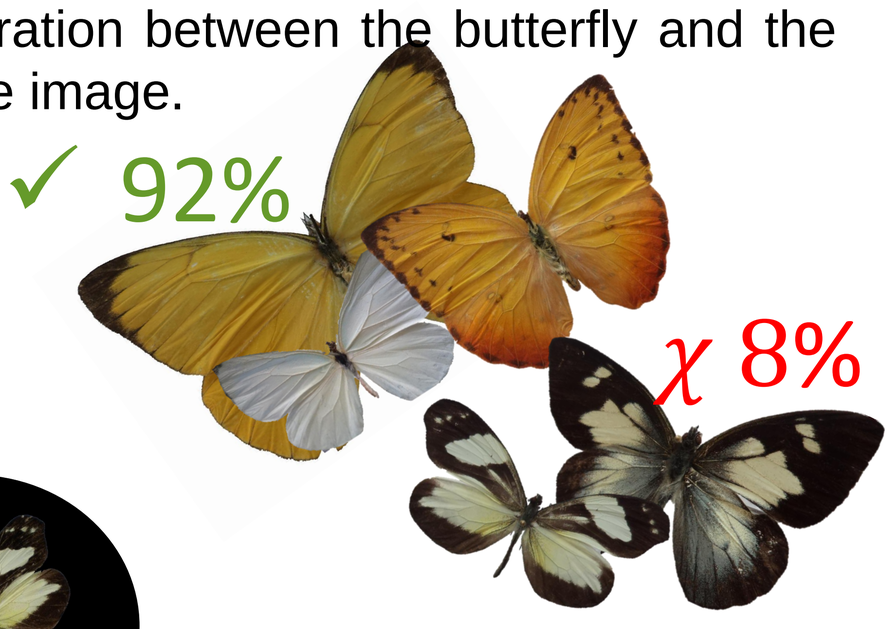
In a context so bio-diverse like the colombian, know the species is the first step to protect them. In this way, like engineering students and with support of the Biology department, it was developed a project that uses the intelligence artificial logic for identify a butterfly image among 5 species (Phoebis philea philea, Dismorphia crisia foedora, Leptophobia philoma intermedia, Melete leucanthe leucanthe, Pseudopieris nehemia luisa), that belong to the family Pieridae. The software is an approach to the use of computational tools in taxonomic tasks that facilitating and doing more possible that non specialist persons know more of their environments and particularity of the butterflies that they can photograph. This project was proposed to be the first possible phase in the development of software, useful to a larger number of species and higher taxa.

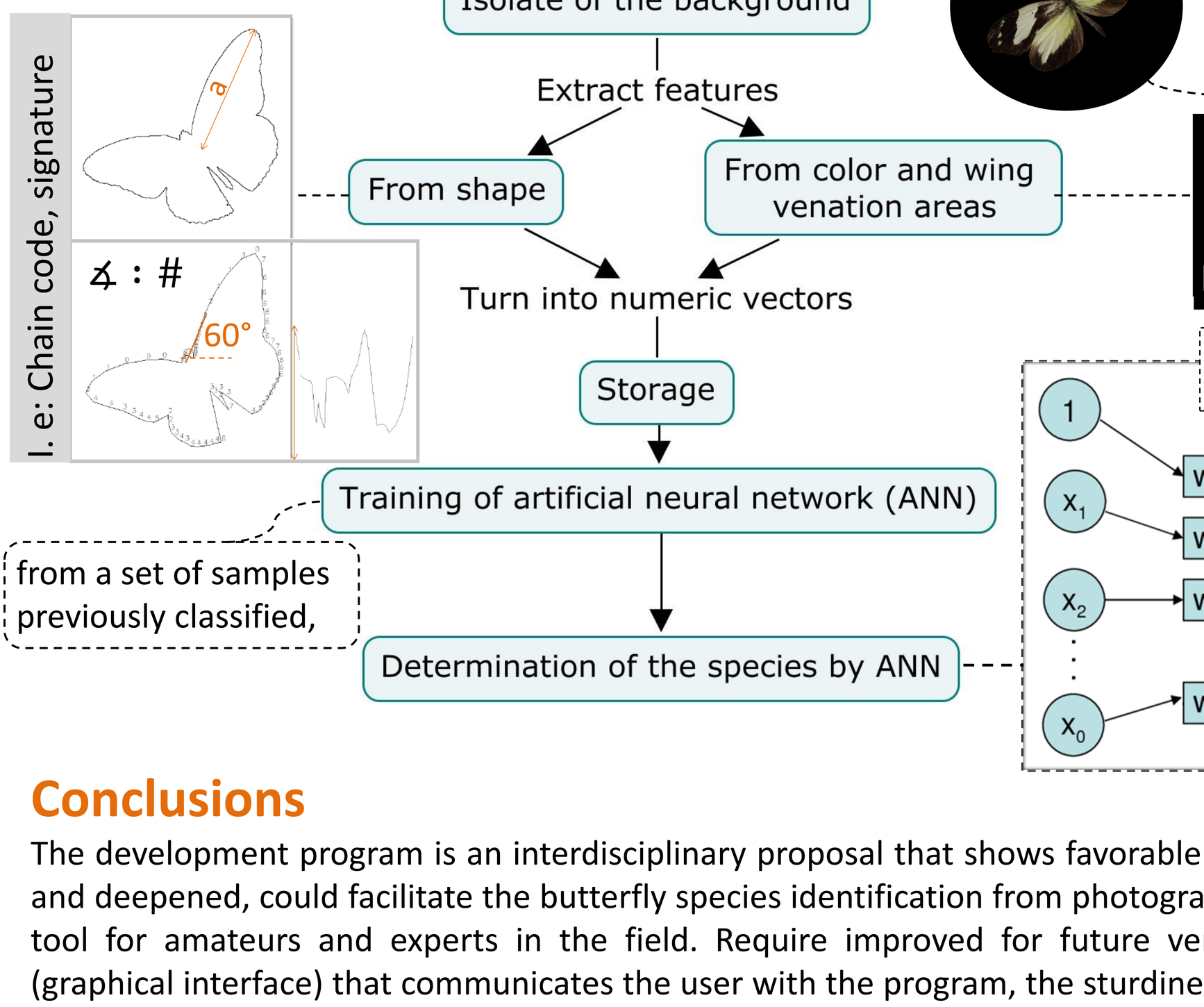
## Materials




## Results

The proofs were done with photographs taken in similar conditions and with less than 20 images.
It was evidenced on the software's evaluation process, that the main factors that affect the result are the photograph's angle and the brightness. On the other hand the definition and the contrast affect to appropriate separation between the butterfly and the background of the image.




## Conclusions

The development program is an interdisciplinary proposal that shows favorable results and that being expanded and deepened, could facilitate the butterfly species identification from photographic images, becoming a support tool for amateurs and experts in the field. Require improved for future versions of the program: the GUI (graphical interface) that communicates the user with the program, the sturdiness of the program and reconsider the characteristics that are extracted from the butterflies according to the particularities of the selected species.

**References**

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