



### 3. INTERACTIVE ANIMATIONS CREATION

We started to create the first interactive animations in 2003. At that time we had no experience in this respect whatsoever, and we could not find any similar objects on the web either.

First of all we defined a template of colours and shapes for carrier charge (Figure 3), the depletion layer, the type of semiconductors, for floating current, voltage changes and other characteristics and features for these animations: We created also sources files with a *fla* extension, which is used as templates for creation of interactive animations in “eLearn Central” portal.

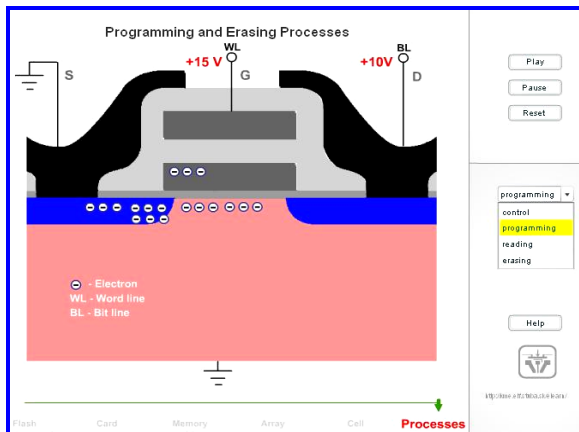


Figure 3 SD Memory Card

All the animations created in Flash are the outcome of continuous reciprocal interaction between teachers and students of “eLearn central team”. We have formed an “eLearn central team” from teachers and students since 2004. Students in our team helped each other thus enabling them to solve some of the difficult software problems. Our new students used the Flash software and created complicated animations in a very short period of time (Figure 4). They used the created animation templates, multimedia schoolbook [4, 5] and a library of our symbols. These templates and symbols were created by their predecessors. It is also a confirmation of how useful standardization of shapes, colours, templates is in a support e-learning materials design.

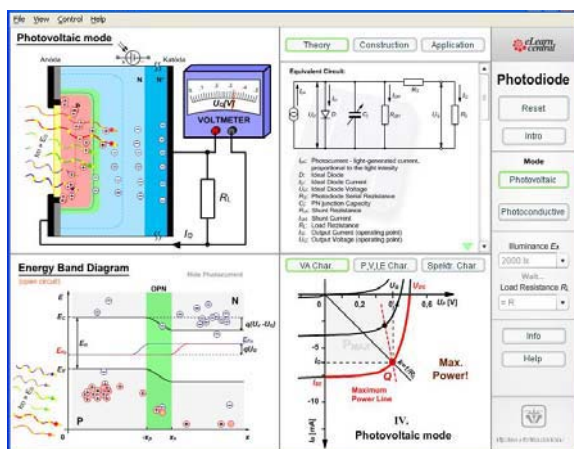


Figure 4 Photodiode – Photovoltaic mode [6]

We have been communicating together on a regular basis, either in face-to-face meetings, or by an e-mail. Each consultation was based on a teacher-student interaction with

equal rights. Complicated physical problems were solved by involving other teachers of our Department of microelectronic who specialize in a given problem [7, 8].

According to our experience, we think that teachers’ cooperation with students is one of the most prospective ways in a support of an eLearning materials design.

### 4. CONCLUSION

We decided to use interactive animation as a very interesting way for an interactive access to information in a Microelectronic education. These animations were designed to help students to understand details of electrophysical problems.

We emphasized the level of animation interactivity and intuitiveness. Interaction in our animations is very important, because everybody knows that own experience is the best teacher. Besides, interactivity, in our case, provides the students also with an opportunity to change many parameters. Our aim was to create an interaction as intuitive as possible.

We created a library of interactive animations course “Interactive flash animations”. The access to this course is free not only for our students, but for anybody who is interested in this area. All animations are used for education in courses allocated on the portal “eLearn central”.

At present, we are working on the English version of the animations, so that we can extend our cooperation with other teams working on similar problems. Also, we would like to add sounds to the interactive animations to make them more attractive and easier to use. Of course, we continue in developing of new animations in a new area: Storage media, Light source, Binary numeral system, Suppressor diode etc. Feedback of students is very positive and inspires us in our work.

### 5. ACKNOWLEDGMENT

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