ACAR that does not hurt pedestrians if it hits them, changes colour depending on the driver's mood and automatically avoids traffic jams - this is the kind of automobile dreamed up by Ryan Chin, a fellow at the Massachusetts Institute of Technology's Media Lab.

Mr Chin's ideas, first outlined in a thesis project some years ago, are now getting serious backing. The Media Lab has committed a team - including structural engineers, neurological experts, mechanical engineers and a rocket scientist - to develop the concept. General Motors has agreed to build a model based on the plans in 2006. The world-renowned architect Frank Gehry has promised to come up with a design.

"Frank and I fantasised about doing something like this for years," says Bill Mitchell, head of the Media Lab. "If we think of well-loved cars like the (Volkswagen) Beetle, the Mini, the Ferrari, they all have a distinct look. We're counting on Frank to give the car a compelling visual form."

As former dean of MIT's school of architecture, Mr Mitchell worked closely with Mr Gehry on the design for the university's new artificial intelligence centre. When Mr Mitchell took up his new job this year, he saw it as the perfect chance for a new collaboration. Mr Gehry, who has already designed vodka bottles and chairs as well as the Guggenheim Bilbao, was happy to participate. His role will intensify later this year, after the MIT team has settled on a technological direction for the car.

The difficulty of making radical changes to established manufacturing technologies means vehicle design has changed surprisingly little over the past century. "This project gives us a chance to ask questions you'd be laughed at or fired for asking at a car company," says Mr Mitchell.

The Media Lab's ideas are radical. The new car would have interchangeable parts that can be customised. Drivers would be able to change those parts according to their needs. During the week, for instance, a driver may want a larger vehicle for carpooling but a smaller car at weekends. "You could just take the cab part and put it on the same set of wheels," says Mr Chin. Tyres could be selected for different weather conditions and terrain and seats could easily be reconfigured according to numbers of passengers and amount
of luggage space needed.

The Gehry car's designers envisage what they call an "expressive" computerised shell. The Media Lab team is experimenting with a number of materials, including plastics and titanium. "We have to get beyond metal," says Mr Mitchell. The shell, for instance, could change colour and design at the flick of a switch. A soft, flexible quilted exterior might prevent fatal car accidents. It could also be programmed to give written signals to other motorists, such as "turning left", or "slow down, danger ahead".

The MIT design team plans that the experimental car will provide real-time intelligence to drivers. Navigational systems that guide motorists to programmed destinations are already popular. The Media Lab team envisages a real-time system that can also give drivers information about traffic jams, tell them where to find a parking place or even signal nearby restaurants and hotels.

The programme is challenging. Already, the designers concede that it may be complicated for drivers to change cabs at home. "But you could take it in to mechanics and have them do it," says Mr Chin.

Wayne Cherry, head of the General Motors team working on the project, says that the final product may be different when it comes to the mass market but he is convinced that the collaboration will generate compelling ideas.

"No one knows what will come out of it, but that's the point," he says. "We're looking for a little magic."

LOAD-DATE: July 25, 2004